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LETTER FROM THE CONGRESS PRESIDENT

About Decon'21

Funda Akaltan

Congress President of Decon'21, PhD, DDS, Professor, Department of Prosthetic Dentistry, Faculty of Dentistry, Ankara University, Ankara ,Turkey

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Decon'21, the first international dental education congress in Turkey, was held online from January 11 to 15, 2021, with the theme of dental emergency action plans in pandemic conditions, "what we can do about undergraduate dental education, and recommendations for Covid-19."

There were seven conferences, seven panels, and one conversation, with 37 keynote speakers and 38 oral presentations. Three separate workshops were also organized within the scope of the congress, particularly regarding "preparing questions at different learning levels, using checklists and rubrics in practice training, and interaction methods in online education."

The primary goal of Decon'21 is to improve community oral and dental health services while also providing students in the faculty of dentistry with a current dental education. Decon'21 is the result of an educational volunteer organization team led by Prof. Dr. Kaan Orhan, dean of Ankara University Faculty of Dentistry, and Congress President, Prof. Dr. Funda Akaltan.

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CONGRESS PROCEEDING

The Effect of COVID 19 Pandemic on Clinical Practices and Education in Cukurova University Faculty of Dentistry

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Abstract

Purpose: The aim of this study was to evaluate the strategy of Cukurova University Faculty of Dentistry in clinical management and education during COVID 19 pandemic and report the effects of the coronavirus outbreak that affected the whole world.
Methods: The number of patients, income and expenditure rates were compared between March-November 2019 and March-November 2020. The effect of COVID 19 pandemic on education was evaluated by comparing the preclinical and clinical course methods and assessment-evaluation methods before and during the pandemic period. Comparisons were made considering the theoretical and the practical training, feedback and student evaluation methods.
Results: The number of patients and income levels in March 2020 was approximately 50% of the income in March 2019. A dramatic decrease was observed in the number of patients and income-expense levels in April and May. Although normalization has started by October 2020, clinics have been working with a performance of approximately 40% compared to 2019. Cukurova University Faculty of Dentistry does the online dental training using Microsoft Teams. Practical applications are thought using videos and photographs. Feedback is important in practical training. For this reason, students are asked to prepare a powerpoint presentation with pictures taken in a pre-determined format and submit the presentation through the software. The lecturer gives feedback using the Microsoft Teams program. Online exams (multiple choice, structured open ended or oral) are conducted using the same software.
Conclusion: Cukurova University, Faculty of Dentistry is affected by COVID 19 pandemic. However, the minimal impact of COVID 19 pandemic has been targeted. Therefore, the effective clinical arrangements and rapid adaptation to the distance learning was needed. Pandemic gave us a new vision for dental practices which will be used in the post pandemic period and help us reconsider our previous working habits.

Key words: COVID 19; Cukurova University Faculty of Dentistry; dental clinic; dental education

Introduction

In December 2019, the disease caused by the severe acute respiratory syndrome coronavirus-2 (SARS-COV-2) virus in Wuhan, China, was named coronavirus disease 2019 (COVID-19) by the World Health Organization. It was declared a pandemic by the World Health Organization (WHO) because it was seen in more than 110 countries and affected the densely populated regions of the World.[1] On March 11 2020, the first COVID 19 case was seen in our country.

Coronaviruses are single stranded, enveloped, rapidly mutating RNA viruses.[2] The most common symptoms of COVID-19 infectious disease are fever, dry cough and myalgi. Shortness of breath, fatigue, muscle pain, confusion, headache, sore throat, loss of smell and taste sense, diarrhea and vomiting are also seen in some patients.[3,4]

The diagnosis of COVID-19 can be accurately made by evaluating clinical symptoms (such as fever and nausea) and laboratory tests (CT findings and reverse transcriptase polymerase chain reaction [RT-PCR] on respiratory tract samples).[2,5] It has been found that people infected with the virus have COVID-19 virus in their saliva.[6] During COVID-19 pandemic, the measures to be taken in dental clinics are of great importance to

prevent the risk of cross-infection between patients and dentists and to control the pandemic. Oral and dental health professionals should know the ways of COVID-19 transmission and take precautions. [7]

Dentists, assistants and patients can be exposed to COVID-19 virus found in the oral cavity and respiratory tract during dental treatments and can also act as hosts. COVID-19 enters the cell through the angiotensin-converting enzyme-2 (ACE-2) cell receptor. Cells with ACE-2 receptors are found in the oral mucosa, tongue dorsum, tongue base and mouth floor, salivary gland ducts, lungs and respiratory tract. [8] Therefore, the oral cavity, where ACE-2 + cells are concentrated, becomes a high-risk area for COVID-19 transmission. [7]

The aim of this study was to evaluate the strategy of Cukurova University Faculty of Dentistry in clinical management and education during COVID 19 pandemic and report the effects of the coronavirus outbreak that affected the whole world.

Methods

With the occurrence of COVID 19 cases in our country, routine dental practice services were immediately terminated in our faculty clinics. Shift charts were created for the lecturers, assistants, nurses, and oral and dental health technicians. Staff were teamed to work in the pandemic dental clinic. Each team consisted a dentist from each department. In the pandemic dental clinic, these employees were planned to work half a day and shift once in approximately 10 days. In this way, the faculty management provided the staff to reduce the risk of COVID 19 transmission in the clinics and minimize the contact between the employees.

Patients filled the "Possible COVID 19 case inquiry guide for outpatients" forms. Patients were admitted to the clinic according to the information provided in the forms. Starting on March 23, 2020, only emergent dental practices (determined by the decisions of the scientific advisory board of the Ministry of Health) were carried out in the pandemic dental clinic.

The isolation of each of our dental units in our clinics was provided for routine dentistry services in our faculty. Patients were accepted in the clinic, with social distance rules and dental units not facing each other or side by side. In our faculty clinics, the clinics were disinfected by creating an aerosol mist with fine spray technique using cold fogging devices Ultra Low Volume. In addition, since most of the dental procedures create aerosol, an extraoral suction device was placed in the dental units. Routine dental treatment procedures were initiated in our clinics only after all required health standards were established.

The number of patients, income and expenditure rates were compared between March-November 2019 and March-November 2020, with the permission of the Dean's Office of Cukurova University, Faculty of Dentistry (number E-42498749-622.03). The effects of COVID 19 pandemic on education was evaluated by comparing the preclinical (theoretical and practical) and clinical course application methods, assessment-evaluation methods before and during the pandemic period. Comparisons were made considering the theoretical and practical training, feedback and student evaluation methods.

Results

COVID 19 pandemic period income-expense and the number of patients applying to Cukurova University Faculty of Dentistry clinics are presented in Table 1 in comparison with 2019. Our faculty switched its theoretical and practical courses to distance learning process by using Microsoft Teams program infrastructure. Demonstration videos were created for preclinical applications during the pandemic period. And these videos were shared with the students via Microsoft Teams program. In the 2020-2021 academic year, only 5th grade students were allowed to perform clinical applications. 5th grade students were divided into subgroups, taking into account the social distance during the clinical applications.

Table 1. Number of patients, income and expenditure rates

2020/2019	Number of patients	Income	Expenditure
March	52/100	48/100	78/100
April	2/100	4/100	0/100
May	4/100	2/100	4/100
June	21/100	7/100	17/100
July	20/100	6/100	11/100
August	32/100	22/100	50/100
September	18/100	15/100	21/100
October	37/100	29/100	63/100
November	38/100	41/100	41/100

Discussion

Bioaerosols formed during dental applications have very small particle diameters. For this reason, contact of aerosols with oral, nasal and eye mucous membranes of physicians and dental assistants were prevented by using appropriate personal protective equipment. Miller stated that 15-83% of aerosol particles varying between 0.06-2.5 µm pass through the filters of the surgical masks. [9] Using standard medical masks during dental practices is not enough to prevent COVID-19 transmission. For this reason, dentists and auxiliary staff use masks with smaller pore diameters during dental treatments. The use of masks that cover only the mouth and nose areas is not sufficient. It is necessary to use shields that cover the eye areas and to use surgical caps that cover the hair. [7] In their clinics, physicians and auxiliary staff pay maximum attention to minimize contamination during the clinical study.

When Table 1 is examined, it is seen that the number of patients and income levels of our faculty during the March 2020 period was approximately 50%, since COVID 19 pandemic was declared on March 11, 2020. It is observed that there is a dra-

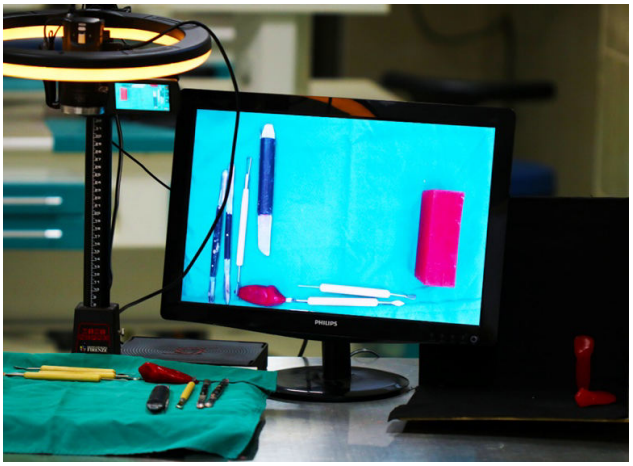

Figure 1. Photo and video recording setups used in preclinical education applications

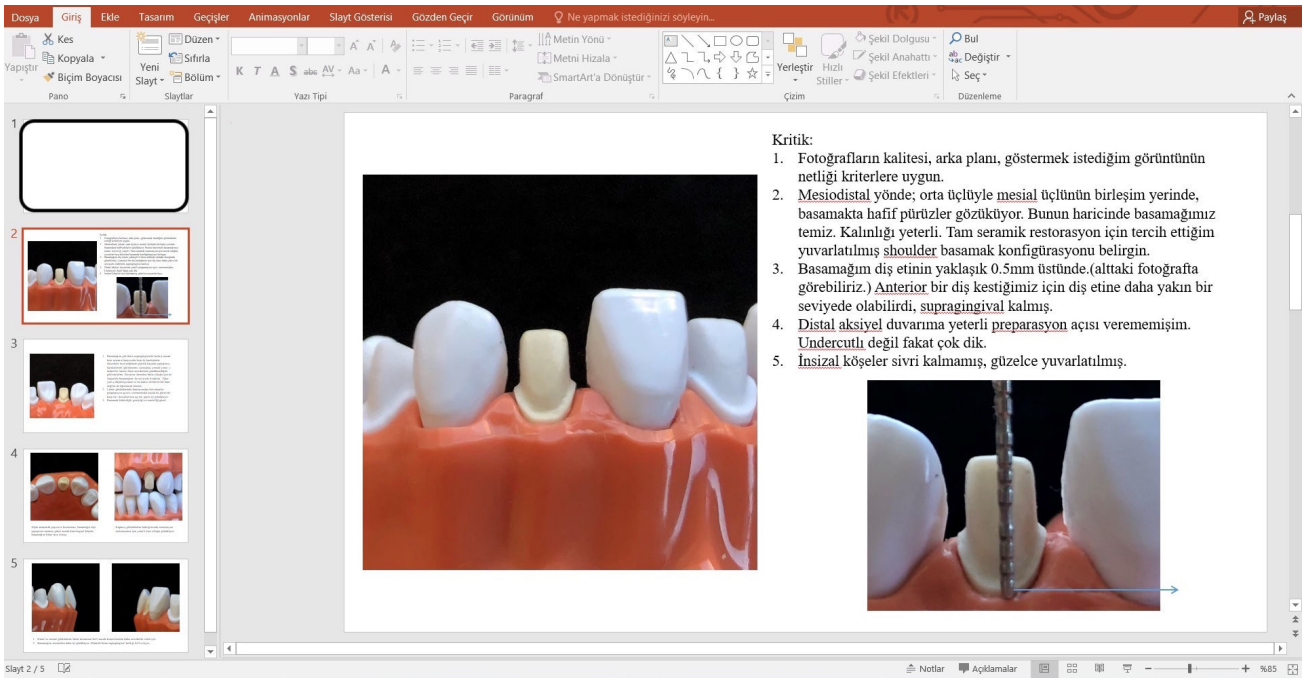

Figure 2. Feedback powerpoint presentation of practical applications

matic decrease in the number of patients and income-expense levels in April and May 2020.

It can be seen from Table 1 that the number of patients and income-expenditure rates in June-September 2020 are around 20% compared to the previous year, since our departments switched from the pandemic clinic to their own clinics in that period while routine dental treatment procedures could not be performed, yet. In our clinics, during routine dental treatment practices, social distance rules and unit disinfection times are considered. Therefore, when the number of patients and income-expense ratios are compared with the previous year, it is seen that the clinical performance is approximately 40%.

With the announcement of COVID 19 pandemic by the World Health Organization, education was suspended. It has been announced by the Higher Education Council of Turkey that as of March 23, 2020, the distance education process will begin with digital facilities in all universities considering the distance education capacity. Cukurova University Faculty of Dentistry switched its theoretical and practical lessons to distance education using Microsoft Teams program infrastructure.

Dental training in Turkey is a 5-year program, where students are enrolled to preclinical courses during the first 3 years, followed by a 2-year clinical program. Some of the preclinical courses include practical applications as well. Students are required to do a certain number of practical assignments like tooth preparation and impression making. During the face-to-face courses students were able to complete the practical work and get some feedback during the practical course time. They were able to get feedback for the work they did out of class time as well. Demonstration videos were created for preclinical courses during the pandemic period (Figure 1) and shared with the students via Microsoft Teams program. Since getting feedback is highly critical for dental training, students are asked to prepare a powerpoint presentation (Figure 2) presenting photographs and videos of the required assignment. The assignments were evaluated and feedback was given on Microsoft Teams.

4th grade students were responsible for conducting clinical applications. However, they are not permitted to do practical work during the pandemic. Therefore, practical applications are made for these students by sharing videos of the clinical applications. In the 2020-2021 academic year, only 5th grade students were allowed to perform clinical applications by dividing the students into subgroups, taking into account the social distance in the clinic for clinical applications. The 5th grade dental students experienced how to work under pandemic conditions and learn patient management during the pandemic period. Thus, it was ensured that they provide routine dental treatment services.

Conclusion

Cukurova University, Faculty of Dentistry is affected by COVID 19 pandemic. However, the minimal impact of COVID 19 pandemic has been targeted. Therefore, effective clinical arrangements and rapid adaptation to the distance learning was needed. Pandemic gave us a new vision for dental practices which will be used in the post pandemic period and help us reconsider our previous working habits. In addition, the experience we gained during pandemic will guide the preclinical and clinical dental education during the post-pandemic period.

Author Contributions

Koray Soygun: Designed the study, Reviewed literature, wrote manuscript. Yurdanur Uçar: Contributed substantially to discussion

Conflict of Interest

Authors declare that they have no conflict of interest.

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CONGRESS PROCEEDING

Comparison of the Exam Scores Obtained in Face-to-Face Education and Online Education by the Students of the Faculty of Dentistry

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Abstract

Purpose: The Covid-19 pandemic has affected our daily lives by affecting the whole world and caused our habits to change.One of the effects of the epidemic has been on education.With the spread of the epidemic, online education has become the only way to maintain the normal teaching order.In this case, it directly affects the quality of education received.The aim of this study is to examine whether there is a difference between the exam scores made face to face and online.
Methods: Students who were 3rd grade in 2018-2019 and 4th grade in 2019-2020 academic year were included in the study.The scores that these students got in the Pedodontics Theoretical Exam within two years were evaluated. Exam scores according to time were analyzed with Friedman Test and Wilcoxon Test.
Results: In the 2019-2020 academic year, the median values of the scores obtained from the exams that took the first exam face-to-face and the second and third exams online varied ($p<0.001$).The median values of the scores obtained in the online exams (median values of 90 and 95, respectively) (the mean values are 89.6±8.7, 93.8 ± 9, respectively), the median values of the scores obtained from the theoretical exam (median 70, mean 67.2±18.1) was obtained higher.On the other hand,it was observed that there was a significant increase between the scores obtained by the same students from the exams held face-to-face in the previous year (median 74, mean 74.1±7.1) and the scores they took from the online exams they obtained the next year (median 89, mean 87.7±9.1)($p<0.001$).
Conclusion: The results of the exams made with the online system are higher than the exam scores performed face to face.This may be due to the insufficient control mechanisms of the online exam system.For this reason, online exam security measures should be increased.

Key words: exam, face-to-face education, online education

Introduction

Education is defined as the development process in which change occurs with free will in human beings.[1] Economic, political, and sociological factors with the development of technology; Internet-based education has increased the importance of easy education in higher education.[2] One of these various factors has been the Covid-19 pandemic. With the spread of the Covid-19 pandemic, the education plan all over the world was disrupted and our country was affected by this situation. Education has started online education system transitions to prevent education disruption.[3] Because it has become the only way to maintain the normal education order in the training of the online education pandemic to maintain education order.[4]

Determining the change in the status of the people who receive education at the end of the education process or in the intermediate periods and eliminating the missing parts requires the use of measurement and evaluation methods. The remote implementation of education has also created the measurement and evaluation methods to be performed remotely.[1] With the development of internet-supported education, some or all of the measurement and evaluation processes can be carried out on the internet.[1]

Educational changes have brought challenges to online education platforms, including the emerging needs of online education, meeting these requirements, and live streaming.[4] In researches on the evaluation system of online education platforms, it has been observed that there are still some problems such as the lack of certain indicators, unclear evaluation criteria and the accumulation of

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Table 1. Exam scores taken by students according to years

Year	Exams	Mean ± standard deviation	Median (min - max)	p*	p**
2019-2020(n=113)	1.Exam(facetoface)	67,2 ± 18,1	70(0-99)[a]	<0.001)	<0.001)
	2. Exam(online)	89,6 ± 8,7	90(0-100)[b]		
	3. Exam(online)	93,8 ± 9	95(0-95)[c]		
	Total	87,7 ± 9,1	89(0-95)		
2019-2020(n=97)	1.Exam(facetoface)	72,8 ± 10,2	74 (37 - 92)[d]	<0.001)	
	2. Exam(facetoface)	77,9 ± 11,2	79 (29 - 96)[e]		
	3. Exam(facetoface)	58,9 ± 14,3	62 (17- 84)[f]		
	Total	74,1 ± 7,1	74 (60 - 88)		

* Friedman Test, ** Wilcoxon Test, a-f: There is no difference between times with the same letter. n: Total of students number.

grade distributions in certain scores.[4] For this reason, our aim in this study is to examine whether there is a difference between the exam scores made face to face and online.

Methods

Students who were 3rd grade in 2018-2019 and 4th grade in 2019-2020 academic year were included in the study. 113 "3rd grade" students and 97 "4th grade" students participated in the study. The scores that these students got in the Pedodontics Theoretical Exam within two years were evaluated. Data were analyzed with IBM SPSS V23 (Chicago, USA). The suitability of the values to the normal distribution according to the groups was examined by Kolmogorov-Smirnov test. Exam scores according to time were analyzed with Friedman test and Wilcoxon Test. Analysis results are presented as mean ± standard deviation and median (minimum - maximum) for quantitative data. The significance level was evaluated as $p < 0.05$.

Results

The median values differ according to the scores taken from the exams in the 2019-2020 academic year, which includes the year 2020 when the pandemic was seen in our country ($p < 0.001$). The median value was 70 in the 1st exam, 90 in the 2nd and 95 in the 3rd. While the highest median was in the 3rd exam, the lowest median was obtained in the 1st exam. It has been observed that the median values of the 2nd and 3rd exams, which are the exams with online exams, have increased.

When the Pedodontics exam scores of the same students in the previous academic year (2018-2019) were examined, it was seen that there was a statistically significant difference between the median values of the exam scores made during the year ($p < 0.001$). However, it was seen that this difference was due to the decrease in median values, unlike the pandemic period. The median value obtained in the first exam was 72.8, in the second exam it was 77.9, while the median value in the final exam was 58.9.

It was also observed that there was a difference between the scores obtained from the Pedodontics theoretical exam in the 2018-2019 academic year, when all exams were held face-to-face, and the first exam in the 2019-2020 academic year, when the last two exams were held face-to-face ($p < 0.001$). (Table 1)

Discussion

Online education draws attention with its many advantages compared to face-to-face training. However, these advantages are effective when distance education is designed and implemented correctly.[2] As in all educational levels, it is aimed to ensure that university students can easily access information, contribute to production by using knowledge, and raise individuals with critical and creative thinking skills.[5] In order to be able to evaluate whether they have gained their skills or not, an assessment and evaluation unit should be established, an infrastructure should be established, security measures should be provided for students to access exam applications.[6] Measurement and evaluation criteria (exam duration, number of access, evaluation of exam scores, etc.) should be determined well.[1]

There are various discussions regarding the safety of exams in online education. Some of these are situations such as cheating widely and student achievement cannot be determined objectively. It is very important to provide the necessary conditions in terms of ensuring the safety of the exam and being an objective application in exams conducted online and without supervision.[6]

In a study, the same lesson was given to different groups with online education and face-to-face education, and there was no difference between the exam results of the experimental and control groups.[7] In another study, it was reported that the exam scores of students taking web-based courses were 5% higher than those who received face-to-face education.[8] As a result of our study, it was observed that the exam results made with online education were high. We think that the different results of the studies are due to the difference in the security measures of the exams.

Conclusion

Covid-19 has increased the importance of online education in universities during the pandemic process. Online education applications, which are rearranged as blended with face-to-face education, are the most important investment for universities in the future. For this reason, it is of great importance to increase the inspection mechanisms and security measures of online exam systems.

Author Contributions

BC, CD: Designed the study, Reviewed literature, wrote manuscript; MA: Contributed substantially to discussion.

Conflict of Interest

Authors declare that they have no conflict of interest.

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CONGRESS PROCEEDING

An Overview of Maxillofacial Radiology Education Activities During and after the Covid-19 Pandemic

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Abstract

During the COVID-19 pandemic, the disruptions in educational activities at all levels and fields all over the world were reflected in maxillofacial radiology education. During the COVID-19 pandemic period, theoretical education has been tried to be continued in the form of online education, although various studies showed that online education is insufficient in practical education. After the pandemic, it is predicted that returning to normal maxillofacial radiology education will be challenging in both theoretical and practical aspects and there will be a need to change. Considering the strengths and weaknesses of online education models, whose application area has increased so much during the COVID-19 pandemic. The development and implementation of new, effective education-training models suitable both for the conditions and for everyone involved in education for the post-pandemic period, emerges as a necessity. After the pandemic, it is important to evaluate the blended education model in theoretical education, to make various changes in maxillofacial radiology practical training, and to re-determine the rules of hygiene, separation, and education. The article aims is to convey the applications of online education in the field of maxillofacial radiology, which is widely used in the world during the COVID- 19 pandemic, and the post-pandemic education and training models suggestions by the changing world order by compiling the research results and literature information on the subject.

Key words: COVID 19; maxillofacial radiology; online education

Introduction

Diagnosis and treatment planning are some of the basic competence areas of dentistry. Radiological examination methods are used as complementary to the anamnesis and clinical examination in diagnosis and treatment planning. Rapid technological developments in recent years have permanently changed economic, social and professional life. Information and communication technologies have developed very rapidly, and their recognition has increased all over the world. This situation has changed educational methods and enabled education to be more dynamic and appeal to large masses. In particular, integrating technology into university education is no longer an option but a necessity. It was stated that failing to do so would be considered professional irresponsibility.[1]

Based on this point, it has become inevitable to integrate information technologies, including the internet and electronic learning, into the educational program as a source of information to increase the learning experience of students. As a result of these developments, online education has emerged. We can define online education as a modern education system where students and teachers are not obliged to come to the campus, in a completely virtual environment, live, visual, audio, independent of time and place, interactively.[2] The effectiveness and usefulness of online education in many subjects are known. Students who cannot find face-to-face education (disabled individuals, sick individuals for a certain period, migration, transportation ...) can reach many educational opportunities. Cause it is a more centralized system, it increases the quality of education. It provides faster transfer of technological developments. All people can benefit from education equally. It can also reduce education expenses. It provides the opportunity to establish effective communication between students and educators living in different countries of the world. It provides comfort to students with psychological problems (egg social phobia). It provides freedom of navigation and the ability to repeat the application.[2] These positive examples can be increased. From a pedagogical perspective, electronic education has the potential to transform the paradigm from passive teacher-centered learning to active student-centered learning.[1] It also opened the way for online education combined education. We can define combined education as a hybrid education model that online education and classroom education (traditional education) are applied together.

Dentistry schools have also started to support face-to-face education with distance education tools. Examples of these online edu-

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cation tools are webcasting (computer-based activities), portable digital devices, online evaluation, electronic databases, virtual libraries, video-assisted clinical teaching, online discussion and common studies, clinical simulators, and virtual reality technologies.[1]

Organized studies on pre-graduate education and training methods in the field of oral diagnosis and dentistry radiology have been carried out since 1985. Distance education model in maxillofacial radiology; It includes PowerPoint presentations, educational films, textbooks, congress summary books and articles, presentation of clinical cases through various social media accounts, virtual test applications, communication with the mentor via e-mail.[3]

Skype, Zoom, Instagram ®, Facebook ®, YouTube, Twitter ®, LinkedIn ®, Pinterest ® are social media tools that can be used in the maxillofacial radiology distance education model.[4] In addition to all these easiest and benefits, there are some inadequacies and disadvantages of online education. The most important of these are the difficulties in handling their practical applications in laboratories and workshops. Another difficulty is the absence of group discussions and communication with peers. Setting up online education network can be costly in some countries. Not every student and teacher have the ability to access and use computers is also considered a limitation of online education.[3]

According to the WHO's January 2021 report, 1,889,449 people died in the COVID-19 pandemic, 87,273,380 people were infected, and billions of people were physically, mentally, and economically affected by this pandemic. Healthcare and education services are the most affected areas by the pandemic. Especially during the pandemic, applied online education models applied in these conditions have been a hope for clinical education and service in maxillofacial radiology.

A study which was conducted by Howerton et al.[5], it was examined the success of computer-aided education in students' whole-mouth periapical film shooting. While a group of students received traditional training on long cone technique and film shooting, the other group was given 27 different videos and CDs that showing to periapical film shooting and containing lectures. After the training, the students were asked to take full-mouth periapical films from the models. As a result, students who received computer-aided education made more mistakes in whole-mouth periapical film shooting than students who had traditional education. Despite this, the survey results showed that they liked the online training method. This is the first study that examines the effect of computer-aided education in clinical practice and shows the deficiency of online education in terms of clinical practice.[5]

In a study conducted by Hassan et al.[6], it was concluded that the web-based training module developed for bone anatomy training in CBCT images will assist in understanding and interpreting craniofacial anatomy in the images.Wenzel et al.[7] compared the effectiveness of a traditional radiology book with an interactive digital tool in learning radiological anatomy. The research showed that in the computer-aided method learning abilities increased and that the student was more interested in and used the course material. It has been found that the use of the digital tool is easier, safer, and more useful than a book. Many students stated that using books and digital tools together would be more effective.Another study which was carried out by Kavadella et al.[1] at the University of Athens, it was compared the theoretical success of the online education model and the traditional education model, and it was concluded that the distance education model was significantly more successful.

Soltanimehr et al.[3] compared the traditional education and combined education models and stated that although combined education has a theoretical superiority, it was lacking in practical terms. To prevent the spread of infection during COVID-19, isolation and social distancing measures have been determined by many countries. With the suspension of classroom lectures by most universities, the need to implement and improve online education has become very important and essential.[4] Applications such as Zoom, Microsoft Teams, and GoToWebinar were used to continue education in maxillofacial radiology worldwide. Free viewable webinars by various organizations including the European Society of Radiology, Royal Society of Medicine, Radiopaedia have become popular. Social media platforms such as Instagram and Twitter also provided the opportunity for educators to share content. Various radiology associations took action to provide a comprehensive webinar for trainers and students at the national level. For Dental Schools it is imperative to adopt a strict protocol that accelerates the service, increases biosecurity, and also maintains the educational process. To slow the spread of COVID-19, it is important to balance social distancing and at the same time maintain the workforce required to provide clinical patient care. Theoretical activities for post-pandemic can be carried out remotely. Studies have shown that a correctly applied online education is as sufficient as traditional learning in maxillofacial radiology.[1,3,8] It has been observed that online education eliminates the unnecessary crowd of people and the associated infection risk. In practical terms, limiting the radiographic technique and interpretation classes to only one person, setting updated infection control procedures, extraoral imaging such as panoramic radiography, and cone-beam computed tomography may be valid alternatives during the COVID-19 outbreak.8 Still, Periapical radiographs are indispensable in many clinical situations.[8] After the COVID-19 pandemic, periapical radiography should be performed under the guidance of renewed infection control procedures.[8]

Some Specific Recommendations and Reorganizations for Maxillofacial Radiology Departments in Dental Schools

- Undergraduate students should be divided into small groups and the number of patients entering the clinic at one time should be reduced.[9]
- In the first years of applied training in maxillofacial radiology, intraoral radiography training should be done with anthropomorphic phantoms.[9]
- Training on the indications and application of extraoral imaging techniques should be preferred in intermediate and advanced classes.[9]
- Students, trainers, and staff must wear disposable surgical gowns and mask.
- Imaging receptors should be a double barrier to prevent perforation and cross-contamination.[8]
- During the pandemic period, patients should be taken to the examination and radiography room after proper triage only for emergencies.
- During registration, contamination can pass between staff and patients through paper and pen, so it is important to use a digital system among staff as well.[8]
- Printed radiographs may deteriorate during disinfection and cause contamination. Therefore, institutional digital platforms should be developed to provide imaging transfer, remote diagnosis, outcome control, and clinical case discussion by students.[8]
- The distance between the x-ray room and the examination room must follow a standard guide to prevent aerosol passage.[10]
- In the x-ray room, negative pressure facilities are recommended to keep the potential viral load to a minimum.[10]
- Extraoral radiographs such as dental panoramic or conical beam computed tomography should be preferred instead of intraoral radiographs.[8]
- In cases where periapical radiographs are unavoidable, the patient should be given mouthwash containing oxidative agents such as 0.2% povidone or 1% hydrogen peroxide.[10]
- Precautions should be taken to prevent reflexes such as gagging and coughing that will accelerate the spread of coronavirus.[10]

Conclusion

Social media provides lecturer feedback and promotes active learning, considered best practices for the teaching-learning process. Systematic reviews have shown that online education in maxillofacial radiology is theoretically as effective as traditional education methods. The students stated that computers, the internet, and social media provided the opportunity to reinforce the lessons and showed parallel results in the theoretical exams. Such results, indicating better student performance in online developed courses, have recently been featured in the educational literature. Nevertheless, how to give radiology practical training to students and how to ensure student's attention and active participation is one of the biggest problems. Not all students have equal conditions for internet access. Some of the students return to countries with limited or weak internet access, limited computer access, difficulties in adapting to the distance education model of teachers and students, lack of prior education for effective web-based learning practices as the difficulties of distance education during the pandemic. In addition, because images are usually sent and stored over the internet, care should be taken to store confidential data regarding the sharing of patient information.

All experience indicates that distance education will be more than a necessity in the coming period. Especially, ensuring the continuity of service and education is very important in maxillofacial radiology, which is an indispensable branch for the scientific continuity of dentistry. Data obtained as a result of studies showed that distance education still has shortcomings in radiology practical training. Despite some drawbacks, the integration of online learning into radiology education should be utilized rapidly. It is inevitable to change hygiene habits after the pandemic and to make necessary changes in maxillofacial radiology education.

None

Author Contributions

E.P.: Designed the study, Reviewed the literature, Wrote the manuscript. CSP: Designed the study, Reviewed the literature, Approved the final manuscript

Conflict of Interest

Authors declare that they have no conflict of interest.

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CONGRESS PROCEEDING

Evaluation of Dental Students' Awareness and Attitude about Preventive Dental Treatments: Survey Research

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Abstract

Purpose: Determination of dental students' approaches to fissure sealant applications; the widespread use and evaluation of their effectiveness of protective dental practices is extremely important. This study aims to evaluate the level of understanding and clinical attitudes of 3rd, 4th and 5th grade students of Necmettin Erbakan University, Faculty of Dentistry on preventive dental treatments.
Methods: The first part of the questionnaire consists of 10 questions assessing the students' technical levels of knowledge with data on age, gender and educational level. In the second section analyzing students' clinical behaviors, 11 questions were asked for answers to multiple choices (always, often, sometimes, never). This questionnaire was used on the internet in an anonymous way. For statistical analyses, the IBM SPSS Statistics 25 (IBM Corporation, Armonk, NY, US) software was used.
Results: TThe questionnaire was received by 68 3rd grade, 67 4th grade and 75 5th grade students who were previously educated on fissure sealant applications. The vast majority (96.2 percent) of the students involved in the study indicated that the effectiveness of fissure sealants in preventing the development of tooth decay was confirmed by strong scientific evidence. Again, 99.5 percent of the students participating in the study indicated that the justification of the application procedures for the fissure sealant was identified and understood. With the assumption that only new teeth can be applied to fissure sealants, a statistically significant difference between the classes was observed ($p<0.05$); 3rd graders responded "yes" mainly. The fact that they have not yet undergone clinical training may clarify this condition.
Conclusion: Although dental students have sufficient knowledge of protective dental practices and fissure sealants, variations in understanding and implementing clinical practice procedures may be found between classes. Standardization should be provided and education / lectures on preventive dental practices should be increased to obtain the equivalent of theoretical education at the clinical level.

Key words: Dental students;dental protective applications; pit and fissure sealants

Introduction

Tooth decay is a microbiological infectious disease that can be observed in all age groups, resulting in calcified tissues being damaged and dissolved locally.[1] Of all health issues, it is one of the most prevalent diseases. Tooth decays in accordance with the dietary and oral hygiene habits of the individual; it is also among the diseases that can be avoided.[2]

Preventive dentistry is a specialty of dentistry that uses non-invasive conservative procedures to reduce the risk of caries in population. Although the development of caries decreases over time despite preventive oral health programs, the rate of caries on the occlusal surfaces in pits and fissures still accounts for more than 80% of all caries experienced in children and adolescents.[3]

Fissure sealant applications are one of the most basic preventive dentistry treatments. The most effective preventive treatment method is to modify the pits and fissure areas where occlusal caries occurs at a high rate and to make the surface simple to clean. The connection between bacteria and the food source is cut with these applications and a protective barrier is formed.[4,5] Application to fissure sealant; it is a painless and non-invasive technique used without removing unnecessary tissue.[6,7]

It is highly necessary for dentists to follow preventive strategies for early diagnosis and treatment of carious lesions and also to determine personalized treatment options based on the patient's risk of caries, in order to protect public health and reduce the incidence

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Table 1. Preventive dentistry questions included in the survey

Knowledge, opinions and attitudes regarding fissure sealant
1.I know that strong scientific evidence supports the effectiveness of fissure sealants in preventing tooth decay.
2.I know the application procedures for the fissure sealant.
3.I understand the logic of the application procedures for the fissure sealant.
4.It is possible to apply fissure sealants only to newly erupted teeth.
5.Depending on use, fissure sealants may be used.
6.The most significant factor in the effectiveness of treatment is application methods.
7.Resin fissure sealants are more effective than glass-ionomer ones.
8.Acid is suggested to increase the bonding in fissure sealant applications.
9.I acknowledge that in protective dental applications, fissure sealants have a high role and can be used in new caries.
10.In conjunction with fluoride applications, when fissure sealant treatments are applied, the risk of caries is further reduced.

of caries in society. Not only dentists; dental students should be educated in this direction as well.[8] Determination of dental students' approaches to fissure sealant applications; the widespread use and evaluation of their effectiveness of protective dental practices is extremely important. This research aims to evaluate the level of knowledge and clinical attitudes of 3rd, 4th and 5th grade students of Necmettin Erbakan University Faculty of Dentistry on preventive dental treatments.

Methods

This research was conducted online with 3rd, 4th, and 5th grade students from the Faculty of Dentistry of Necmettin Erbakan University. Participation in the research was voluntary, and the identities of those who took part in the research were kept private. The research was conducted online with the approval of the Ethics Committee (2021/01-10). 68 3rd grade, 67 4th grade and 75 5th grade students were included in the research.

The first part of the questionnaire consists of 10 questions aimed at assessing the technical level of knowledge of students with data on age, gender and educational level. The purpose of these 10 questions was to assess students' knowledge of the application steps of fissure sealants, the necessity of application, and the content of fissure sealants (Table 1). In the second segment assessing the clinical attitudes of students, 11 questions were asked for answers to multiple choices (always, often, sometimes, never). These questions concern the isolation, attachment and application stages of fissure sealant applications, as well as learning about the students' clinical attitudes. The questionnaire's questions were developed using case studies from the literature.[8–10] Before the research, questions about the questionnaire were asked; reliability analysis was used on a pilot group in the research group in terms of understandability and word arrangement.

For statistical analyses, the IBM SPSS Statistics 25 (IBM Corporation, Armonk, NY, US) software was used. The frequency values of descriptive variables were recorded. During the data analysis, Chi-square tests and Mann-Whitney U tests were used. The $p<0.05$ level was considered statistically significant in all of these analyses.

Results

68 3rd grade, 67 4th grade and 75 5th grade students who were previously educated on fissure sealant applications obtained the questionnaire. 137 female (65.2%) and 73 male (34.8%) dental students participated in the research (Table 2). The average age of dental students participating in the research was 21.8.

The vast majority (96.2%) of the students involved in the research reported that good scientific evidence supported the efficacy of fissure sealants in preventing tooth decay development. Again, 99.5% of the students involved in the research reported that they knew and understood the rationale of the application procedures for the fissure sealant. A statistically significant difference between the classes was found with the assumption that only new teeth can be applied to fissure sealants ($p<0.05$); 3rd graders replied "yes" mostly. The fact that they have not yet undergone clinical training may clarify this condition.

Table 2. Demographic data of the participants.

Variables	n (%)
Gender	
Male	73 (34.8%)
Female	137 (65.2%)
Grade	
3rd grade	68 (31.9%)
4th grade	67 (32.4%)
5th grade	75 (35.7%)

At the same time, students in 3rd grade answered "yes" to the suggestion that fissure sealants can also be applied to new caries; the new completion of the theoretical training in protective dental practices can explain this situation. Clinical attitudes towards fissure sealant applications were assessed; statistically significant differences were also observed between the pre-treatment prophylactic polishing grades, reading the material instructions from the manufacturer, and returning to the beginning in incorrect steps ($p<0.05$) (Table 3).

Discussion

The purpose of this research was to assess the knowledge and attitudes of the students of the Faculty of Dentistry of Necmettin Erbakan University about fissure sealants, one of the practices of preventive dentistry. It was shown at the end of the research that students in dentistry had acceptable knowledge of fissure sealants.

While there are questionnaires assessing the students of dentistry in terms of their course effectiveness when the literature is reviewed, it is shown that the number of subject-based assessment studies is limited.

Ealla et al.[10] in their research; they evaluated the knowledge and attitudes of 280 dentistry students regarding fissure sealant applications. The students participating in the questionnaire have been confirmed to have a reasonable theoretical understanding of fissure sealants. On the other hand, the students participating in the survey were stated to have limited clinical practice knowledge.

A 22-question questionnaire survey was used to assess dental students' awareness and knowledge of preventive dentistry practices. The students were asked general questions about oral hygiene practices, xylitol, and fluoride, but the majority of them were reported to have received incorrect answers. As a result, it was stressed that more emphasis should be placed on preventive dentistry practices before students graduate.[8]

In another study published in 2016, 500 dentists were asked questions about preventive dentistry practices. Although all the

Table 3. Questions regarding fissure sealant application procedures

Questions	Always(%)	Sometimes(%)	Rarely (%)	Never (%)
I refuse treatment with fissure sealant, knowing I can apply it to hidden decays.	3.8	3.8	67.1	25.2
I replace them if the fissure sealants are partially or completely broken.	23.3	41.9	32.4	2.4
In fissure sealant applications, isolation is the most important factor that ensures effective bonding.	57.6	35.2	7.1	0.1
Acid application is the most significant factor that ensures successful bonding in fissure sealant applications.	35.7	56.2	6.7	1.4
I clean the surface of the tooth before applying fissure sealants.	85.2	12.4	1.9	0.5
For optimal polymerization in fissure sealant applications, I read the manufacturer's instructions.	47.1	27.6	19.5	5.7
I provide the most effective isolation with rubber-dam in fissure sealant applications.	20.5	17.6	40.5	21.4
In fissure sealant applications, I use cotton rolls to provide isolation.	63.8	28.1	4.3	3.8
I often apply fissure sealant to occlusal areas, other than pits and fissures, to increase the bond.	13.8	13.3	23.3	49.5
If I make any mistakes during the application steps of the fissure sealant, I start from the beginning.	41	30	25.7	3.3
I do the polishing for prophylaxis before placing the fissure sealant.	17.6	19.5	31.4	31.4

questions were answered by only 74 percent of the physicians taking part in the study; most of the respondents are men. It was recorded that 84.2% of the participants were physicians and 48.3% had less than five years of clinical experience. Most of the participants (88 percent) reported as a result of the survey that they believe there is good empirical evidence regarding the efficacy of fissure sealants.[9]

Conclusion

Although dental students have adequate knowledge of protective dental practices and fissure sealants, discrepancies in understanding and applying clinical practice procedures may be found between classes. To receive the equivalent of theoretical training at the clinical level, standardization should be provided and preventive dental practice training / lectures should be increased.

Author Contributions

M.A.I, O.A and H.O conceived the design of the study; M.A.I, O.A and H.O acquired, analysed, and interpreted the data. M.A.I wrote the majority of the original draft of the paper. O.A and H.O participated in writing the paper. All authors approved the final version of this paper.

Conflict of Interest

Authors declare that they have no conflict of interest.

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Evaluation of Dental Students' Knowledge and Opinion About Learning with Virtual Reality

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Abstract

Purpose: The purpose of this survey study is to learn the knowledge, opinions, and thoughts of dental students in our country on the use of VR-based dental simulators in education, and to raise awareness on this issue.
Methods: Questions testing participants' knowledge were based on the data from peer-reviewed dental journals. The survey questions consisting of 25 questions were delivered online via Google Forms (Google Inc., USA) to students who had preclinical training in the dental faculty before the Covid-19 pandemic. The data obtained were evaluated using the descriptive statistics and Pearson chi-square test.
Results: 422 of the 662 students in the study were female and 240 were male students. 82.3% of the study participants were studying at a state university. 74.6% of the participants in the study stated that they needed more preclinical education. While 89.9% of the students participating in the survey stated that they do not have information about preclinical education with virtual reality, 97.4% stated that they have not used a VR-based dental simulator before. 85.5% of them stated that they feel positive about training in virtual environment with VR-based dental simulator and 86% of them prefer using both VR-based training and phantom models in preclinical training.
Conclusion: Dental students had overall positive attitudes towards VR-based dental simulator despite their lack of knowledge and experience. In our country having knowledge about VR-based dental simulators will increase awareness for the development of such technologies and their inclusion in dentistry education.

Key words: dentistry; students; preclinic; virtual reality

Introduction

In dentistry education, pre-clinical laboratory lessons are very important for students to gain sufficient manual skills and to learn basic dental practices. Phantom head models provide the opportunity to learn appropriate ergonomic working conditions and to practice on the appropriate use of hand tools such as mirrors and probes.[1] Typodonts have many limitations including different physical properties than real teeth (such as stiffness, friction), high cost and environmental pollution in the manufacturing process. Teeth that can be extracted from animals or humans and mounted into a phantom head provide more realistic physical properties, but they are not always easy to attain.[2]

Various technologies are included in the dentistry curriculum to ensure a smooth transition to the clinical environment and to improve fine motor skills and hand-eye coordination in preclinical settings.[3] In recent years, virtual reality-based dental simulation training has become an active field. In the past two decades, haptic-based virtual reality has been suggested as an alternative methodology to provide the sensor-motor training needed. The future of VR-based dental simulation is promising due to both its technical advantages and social requirements.[4]

According to historical development of dental simulators, in 1998, the DentSim (USA) was presented as a VR-based pre-clinical training by transferring phantom jaws and teeth to computer environment. With development of American dental simulators in 1999 and 2001, it became possible to diagnose, drill and fill decayed teeth in a virtual environment. Cavity preparation and decay removal procedures can be simulated with the German Voxel-Man dental simulator developed in 2007. It is possible to experience surgical procedures such as impacted tooth extraction with the Swedish origin Cobra dental simulator developed in 2008. The PerioSim, designed especially for periodontics, can simulate three typical operations including pocket probing, calculus detection and calculus removal. The Simodont dental simulator developed by ACTA in the Netherlands in 2009; restorative, endodontic and prosthetic appli-

cations can be performed via this simulator. The HapTEL which is another simulator from UK allows tooth drilling and decay removal procedures. Prosthetic procedures can be simulated with VirDenT simulator developed in Romania in 2011. Endodontic and prosthetic applications can be simulated with iDental produced in China in the same year. The VirTeaSy simulator system, originating in France, gives practitioners experience in the field of implantology as well as prosthetics.[2]

The purpose of this survey study conducted on the students who have received or are receiving pre-clinical training at the faculty of dentistry in Turkey is to determine the level of knowledge, and opinions of the students about VR-based dental simulators in pre-clinical education and to raise awareness on this issue.

Methods

The present study was approved by the "Trakya University Faculty of Medicine Scientific Research Ethics Committee" (. The survey was created using the Google Docs Form (Google Inc. Mountain View, California, USA). It was delivered online to 2.-5. grade students of the faculty of dentistry. Participation in the study was anonymous and voluntary. The data obtained were evaluated using descriptive statistics and Pearson Chi-square test.

The questionnaire consisted of 25 multiple choice questions. First, the participants were asked questions such as age, gender, academic year, institution, class size, pre-clinical hours, types of materials used in pre-clinic, and the number of instructors per person. Later, they were asked whether the education they received was sufficient or not, whether they had difficulties in the clinic. Afterwards, questions were asked about their knowledge levels and experiences with VR. Finally, the participants were asked questions about their desire to receive training via VR, whether VR training could have a positive effect on learning time, and what materials they would like to use in training.

Results

When we evaluated the findings of our study, we determined that 662 students participated in the survey and approximately 64% of the participating students were girls and 82.3% were those studying at a state university. Approximately 63% of the class sizes were between 50-100. When we asked the students about the type of material they used while studying in the pre-clinic, 67.4% stated that acrylic/plastic teeth were used. When asked the students whether they need more pre-clinical education, the need seems to be decreased as the grade level increased. However, more than half of the 5th grade students who participated in the study stated that they needed more pre-clinical education. Approximately 75% of 4th grade students and 60% of 5th grade students answered the question "Did you have difficulties in the clinic after pre-clinical training?" as "Yes". Most of the students participating in the study stated that they did not use a VR-based hardware technology. One of the questions we asked the participants was whether the students had information about pre-clinical education with a virtual reality-based technology, and approximately 90% of their answers to this question were "No". Approximately 98% of them stated that they have not experienced these technologies before. The majority of respondents reported that they want to use virtual reality based dental simulator in their preclinical practice (85.5

Approximately 85% of the students thought that the use of this technology could shorten the pre-clinical learning time. The majority of respondents prefer training with both phantom head models and virtual simulators in the pre-clinic (Table 1).

In the current study, the students' desire to train in pre-clinical education with phantom heads or virtual simulation or a combination of both learning models was evaluated. The learning models were grouped under two headings, only phantom head and only virtual simulation/combined VR and phantom head. According to the analyzed results; the students with a class size above 100 students, compared to those below 100 students, and those who had phantom head numbers below 50 compared to those who had above 50 in their faculties, and those studying at public school compared to those studying in private schools chose virtual simulations or combined training at a significantly higher percentage (Table 2).

Table 1. Question 25 and the answers.

Which one would you prefer while taking pre-clinical education?	n	%
Phantom head	66	10
VR	27	4
VR + phantom head	569	86

Abbreviations: n; number, VR; virtual reality

Discussion

The purpose of the present study was to evaluate the knowledge, opinions, and thoughts of dental students on the use of VR-based dental simulators in education. Studies on virtual reality based developing technologies in dental education show increase in learning and psychomotor skills with the use of digitalization among students in rising generation.[5] The application of virtual reality-based dental simulator in dental curriculum is assumed to be more common in the future as it allows to repeat and standardize the pre-clinical training procedures, reduce the material consumption, and observe student unbiased. Using digital technology in clinical diagnosis, imaging, and treatments also shortens chair time in evaluation and detection of potential pre-treatment malfunctions.[6]

In a research of 121 participants in 35 countries, 90% of the participants showed a positive attitude for virtual reality-based training in the future.[7] In another study conducted among dentists in our country, approximately 87% of the dentists stated having positive attitude for use of virtual reality-based technology in clinical use in the future.[8] Results in our study also support the outcomes aforementioned as 85.5% of the students were willing to use these technologies.

Gottlieb et al.[9] evaluated the effectiveness of virtual reality simulation in pre-clinical education, they concluded that the ergonomic development and technical performance of students using VR simulation were positively affected by VR simulation training. These results support the use of VR simulation in the pre-clinical dentistry curriculum.

In a study investigating educational models in dentistry, it was suggested that the main reasons for the slow progress of virtual reality applications in the field of dentistry were the high cost and limited training hours.[6] At the same time, several uncertainties are currently limiting the widespread application of virtual reality technologies for the clinical routine. It is anticipated that most of these uncertainties will be overcome by the continuous advancement in information technology.[10]

Regarding VR-based learning in dental education in our country, it can be suggested that the advanced use of such technologies requires increased awareness and experience on existing simulators. Evaluating the perspectives of our educators on this issue and supporting the production of domestic virtual reality-based dental simulators will lead the way on developing our educational technology more functional and cost-effective.

In most of the studies that made evaluations about the usage of VR-based dental simulators, it was reported that the volunteers who participated in the study were the ones who experienced VR-based dental simulators before.[6–9] In future studies can be planned

Table 2. Material preferences to be used in preclinical education according to various factors.

	Phantom head	VR/Combined VR and phantom head	p
Type of university			
Public	8.4%	91.6%	0.005
Private	17.1%	82.9%	
Class size			
0-100	11.5%	88.5%	0.033
Over 100	6.0%	94.0%	
Number of Phantom heads			
0-50	17.3%	92.7%	0.003
Over 50	14.6%	85.4%	

that evaluate the experiences of students about VR-based dental simulators after these technologies are used in our country.

Conclusion

According to the results of our survey study, it can be concluded that the students who have less opportunity to practice in their pre-clinical training are more willing to use virtual simulation even if they have not experienced VR simulation training. In our country having knowledge about VR-based dental simulators will increase the possibility of the development of such technologies and their inclusion in dentistry education.

Author Contributions

All authors have contributed to; conception and design of the study, data collection and analysis, writing the manuscript, approval of the final version to be submitted.

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Authors declare that they have no conflict of interest.

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CONGRESS PROCEEDING

Evaluation of Dentistry Students' Lifelong Learning Tendencies During the COVID-19 Pandemic

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Abstract

Purpose: Dentistry education is a life-long, continuous education. The aim of this study was to determine the lifelong learning (LLL) tendencies of the dental faculty students who were receiving distance education during the Covid-19 pandemic.
Methods: Two hundred fifty-eight dentistry students participated the study. Research data was collected by 'Lifelong Learning Disposition Scale' (LDS). In the first part of the questionnaire, students were asked to reply socio-demographic questions and their ability to learn during the distance education process of the COVID-19 pandemic. In the second part, there were questions about LLL. The low score obtained from the scale indicates that the LLL tendency is high. ANOVA and t-test were used for analysis of LDS score, and the Mann Whitney-U and Kruskal Wallis tests were used for sub-dimensions.
Results: During the COVID-19 Pandemic, 40.3% of the students stated their status of learning skills as medium, 28.7% as bad and 11.6% as very bad. Students' mean score on the LDS scale was 88.26 ± 9.8. The mean LDS score was statistically significant according to their class, gender and their assessment of learning skills during the COVID-19 pandemic ($p < 0.05$). There was no correlation between the monthly income and academic success levels of the students and their LDS scores ($p > 0.05$).
Conclusion: In this study, it was determined that the students made their own evaluations correctly during the Covid-19 pandemic. LDS scores of the students who stated their learning status as bad were significantly higher by 1,187 times. During the Covid-19 pandemic, it is important to communicate using educational methods that aim to support students' learning skills. Therefore, new interventions should be planned to increase students' LLL tendencies.

Key words: Covid-19 pandemic; dentistry education; distance learning; lifelong learning

Introduction

In addition to what is learned in daily life, the information obtained from formal and non-formal institutions of education is also a part of the life of the individual. "Life-Long Learning" (LLL) is a process that includes all learning activities for the acquisition and development of all kinds of knowledge, skills and abilities. This process is geared towards meeting the needs of students to do better both at university and throughout their lives. Therefore, the concept of LLL is a process that starts from preschool period throughout the entire education life that continues in sociocultural and educational areas at home, business life and in the society.[1]

Basic knowledge and skills related to LLL are acquired in childhood and continue throughout the life of individual. The learning method requires the student to choose the one that suits his / her needs with his / her own effort. Professional LLL defines the interests and needs of individuals and development of their competencies that are appropriate for their learning areas.[2]

Dentistry education is a life-long, continuous education. It is known that in the Covid-19 period, distance education process has different effects than face-to-face education.[3] The aim of this study was to evaluate professional LLL tendencies of dentistry students during the distance education process of the COVID-19 pandemic by "Lifelong Learning Disposition Scale" (LDS) developed by Coşkun et al.[4]

Methods

Ethical approval & study design

Two hundred fifty-eight students from Ankara University Faculty of Dentistry participated the study with the permission of the Local

Ethics Committee. Before fulfilling the disposition, students were asked to give their consents.

Features of the scale

Research data were collected by LDS, a 6-point Likert-type scale consisting of a total of 25 items and four sub-dimensions.[4] Psychometric properties of the LDS show that the scale is valid and reliable.[5] In the first part of the questionnaire, socio-demographic variables (term, gender, monthly income and course success) and the status of learning skills during the COVID-19 pandemic were asked. In the second part, there are questions related to the LLL. The first dimension of the scale is motivation (4 items), the second dimension is persistence (8 items), the third dimension is lack of regulation in learning (5 items), and the fourth dimension is lack of curiosity (8 items). The minimum score that can be obtained from the scale is 25 and the maximum score is 150. The low score obtained from the scale indicates that the LLL tendency is high. This scale can be used in studies aiming to determine the LLL tendencies of individuals who continue their pre-graduation education or in health services, to reveal the factors that affect these trends, and to monitor LLL activities.[1]

Statistical analysis

ANOVA and student's t-test were used for the score of the LDS scale, and the Mann Whitney-U and Kruskal Wallis tests were used for sub-dimensions. Linear regression method was used to determine the variables affecting the LDS score. The relationship between the LDS score (the dependent variable) and the independent variables of term, gender, course success, monthly income and learning skills during the Covid-19 pandemic was investigated.

Results

Forty-six-point-nine percent of the students (121) were semester 1 students, while 65.1% (168) were female. 67.8% of the participants in the study stated their monthly income as medium level, as well as academic success by 53.5%.

During the COVID-19 pandemic, 40.3%, 28.7% and 11.6% of the students stated the status of their learning skills as medium, bad and very bad, respectively. The mean score of the student's LDS was 88.26 ± 9.8. The mean LDS score was statistically significant when their semester, gender and the assessment of their learning skills in COVID-19 pandemic were considered ($p<0.05$). There was no correlation between the LDS scores and the monthly income of the students, as well as their academic success ($p>0.05$). The significance of the scores of the students' LLL tendencies scale and its sub-dimensions according to socio-demographic variables is given in Table 1. LLL trend score was found to be the highest in semester 1 students, and it was found to be significantly higher in female students and students who stated that their learning skills as very bad during the COVID-19 pandemic compared to other students.

When the sub-dimensions were examined, the motivation sub-dimension was affected by course success and the status of learning skills during the COVID-19 pandemic, while the persistence sub-dimension was affected by academic achievement and the status of learning skills during the COVID-19 pandemic. It was determined that the lack of curiosity sub-dimension was affected by gender in regulating learning, and the lack of curiosity was statistically significantly affected by term, gender and course success (Table 1, $p<0.05$).

As a result of the linear regression analysis, it was determined that the variables of gender ($p<0.001$) and the status of learning skills during the COVID-19 pandemic ($p=0.045$) affect the LDS score.

Discussion

It is expected that dentists will make the necessary effort to meet the increasing expectations of the society during the Covid-19 pandemic. For this reason, students of the faculty of dentistry should follow the innovations in science and technology and adopt the philosophy of LLL to meet the demands expected in their professional lives. In this study conducted to examine the LLL tendencies of the students studying at the dentistry faculty, it was determined that the LDS score of the students were at a medium-low level (88.26 ± 9.8). When the sub-dimension averages of the LDS were examined, the high average of the sub-dimensions of motivation, persistence, deprivation in organizing learning and lack of curiosity also supported the finding that students' LLL tendencies were low. Karaduman and Tarhan,[6] examined the relationship between university students' LLL tendencies and their self-efficacy perceptions and reported that the students' LLL tendencies were high. Dikmen et al,[7] concluded that the LLL competencies of the students are at a good level in his study investigating the LLL competencies of medical faculty students. In other studies, conducted on different sample groups, it was found that individuals' LLL tendencies were high.[8] Therefore, in this study, it can be said that the LLL tendencies of the students studying at the dentistry faculty are medium-low, and their willingness and motivation to participate in activities related to LLL is not very high. In our study, it was determined that male students' 'LLL tendencies are higher than female students' LLL tendencies. In addition, it was determined that mean scores of students' deprivation and curiosity sub-dimension significantly differ according to gender. Similar to our study, Dikmen et al[7] examined the LLL tendencies of medical faculty students, and it was found that the LLL tendencies of male students were higher. According to these results, it can be said that male students are more motivated in LLL and investing in their personal development. However, other studies have revealed different findings between LLL tendency and gender variable. Although there are studies that stated that LLL tendencies are higher than male students than females, performing these studies in non-health areas prevents the generalization of the results.[6,9]

Reading habit is an important factor that positively affect the LLL competence.[10] In the literature on book reading habits, individuals should gain the habit of regular reading at an early age in order to gain LLL competence. In this study, a significant difference was found between the grade of students and their LLL tendencies. It was determined that the total scores of the third- and fourth-year dentistry students regarding LLL were significantly higher than the first- and second-year students. Similarly, Dikmen et al[7] reported that LLL tendencies of senior medical faculty students were higher than the first-grade students. According to these results, it is seen that as the grade level of students increases, their LLL tendencies also increase. Therefore, it is seen that students are in a LLL desire and effort. However, in this study, no significant relationship was found between students' economic status, school success and LLL tendencies.

It was observed that the evaluation of the learning status of the dentistry students during the Covid-19 process significantly affected the LLL score. Students who defined their learning status as bad were also found to have high LLL scores. It can be said that there are students who negatively developed their perceptions of LLL during the pandemic process. Therefore, in future studies, there is a need to examine LLL tendency outside the pandemic period with larger samples.

Conclusion

While the minimum score that students can get from the scale is 25 and the maximum score is 150, the minimum score that the students get out of LDS was 51 and the maximum was 123. The

Table 1. Significance of the scores obtained by the students from the LDS and its sub-dimensions according to some socio-demographic variables (N = 258)

LDS vs. Socio-Demographic Measures	Semester	Gender	Monthly Income	Course Success	Learning Skills During the COVID-19 Pandemic
Lifelong Learning Tendency	**0.001**	**<0.001**	0.552	0.338	**0.049**
Motivation (4 questions)	0.181	0.191	0.161	**0.001**	**0.004**
Persistence (8 questions)	**0.029**	1.305	0.333	**<0.001**	**0.012**
Lack of Regulation of Learning (5 questions)	0.198	**<0.001**	0.217	0.188	0.723
Lack of Curiosity (8 questions)	**0.030**	**<0.001**	0.137	**<0.001**	0.262

average score of the students was 88.3. The high scores of the scale indicated that the students did not develop their learning skills sufficiently, and their undergraduate education should be reviewed in this regard.

In this study, it was determined that the students made their own evaluations correctly during the Covid-19 pandemic process. The LLL tendency score of the students who stated their learning status as bad was found to be 1.187 times higher, which was statistically significant. In the Covid-19 pandemic, it is important to communicate by using educational methods that aim to support students' learning skills. New interventions should be planned to increase students' LLL tendencies.

The life skills scale score of female students was five times higher than male students. It should be aimed to reveal the reasons for this difference with qualitative research, especially in the sub-dimensions of regulation of learning and lack of curiosity, and to eliminate the shortcomings of female students.

Low course success correlated with the LDS score. Students who have problems in motivation and persistence dimensions also had low academic success. In the Covid-19 period, ensuring the interaction of the students with the faculty and asking them to participate in applications such as zoom will increase motivation.

Students in the lower semester have higher LLL scores. These students spent all or most of their post-secondary education in distance education and could not interact with the school. Another situation is that the lower years of high school education experienced exam stress and had to work for a long time. The desire to take a break in the first years of the faculty may have caused them to get high scores in the persistence sub-dimension. To encourage these students to spend more time in face-to-face trainings at the faculty in the post-Covid-19 period will help to eliminate the shortcomings that this process will create.

Author Contributions

All authors have contributed to; conception and design of the study, data collection and analysis, writing the manuscript, approval of the final version to be submitted.

Conflict of Interest

Authors declare that they have no conflict of interest.

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CONGRESS PROCEEDING

Evaluation of Clinical Students' Perspectives and Satisfaction Levels on Practical Practices at the Faculty of Dentistry of Tokat Gaziosmanpaşa University in the Covid-19 Pandemic

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Abstract

Purpose: It was aimed to reveal the perspectives and satisfaction levels of 4th and 5th grade-clinical students who go on practice education at Tokat Gaziosmanpaşa University Faculty of Dentistry in the 2020-2021 Academic Year.
Methods: Within the scope of the study, 146 students in total, who did their face-to-face internship between October 5 and December 11, 2020, were asked to participate in an online survey with 10 questions. Clinical students were asked about their perspective on Covid-19 infection, whether they felt safe in their dental practice, their families' level of anxiety about their internship, and whether they voluntarily chose dentistry.
Results: According to the survey results; 15.1% of the students agree (TA), 27.4% agree (A), 37% partially agree (PA), 13% disagree (D) with the statement "I am pleased to have internships since the beginning of the term" 7.5% of them answered, "Strongly disagree" (SD). Pearson's chi-square test was used in the statistical analysis of the answers given by 4th and 5th-grade students to the first 9 questions of the questionnaire consisting of the same questions. According to the survey results, it was also observed that most students chose the dentistry profession of their own will (TA 39%, A 36.3%, PA 13.7%). The number of students who think they feel safe in terms of infection control during their internship is 60% in total (TA 5.5%, A 17.1%, PA 37.7%).
Conclusion: Despite the increasing number of cases until today, it is thought that the process has been successfully managed and that the students have gained experience in practical training, albeit limited.

Key words: Clinical students; Covid-19 Pandemic; Dental Practices; Dentistry Education

Introduction

In December 2019, a coronavirus that was not detected in humans before was identified in Wuhan, China.[1] The COVID-19 outbreak, declared as a pandemic by the World Health Organization (WHO) as of March 12, 2020; continues to threaten humanity physically, spiritually, and socially. It has been observed that international travel plays a major role in the spread of COVID-[2]19 between countries, and it has been reported that it can be transmitted directly from person to person through saliva and respiratory droplets, contact, and any object that has come into contact with the virus.[3,4] The very small particle diameter of the aerosols formed during dental applications increases the risk of infection of dentists and auxiliary staff. Dentists and auxiliary staff are in close contact with patients during the procedures in dental clinics. It is known that a large number of virus-contaminated droplets and aerosols spread into the environment during interventional procedures. Therefore, dentists are constantly exposed to patients' saliva, blood, respiratory tract secretions, and other contaminated body fluids.

Dentistry Undergraduate Education is a five-year practice-oriented education. In the first three years of education, students develop their knowledge and skills to prepare for the clinic, which we call preclinical, while in the last two years, 4th and 5th grade (clinical) students perform dental treatments at the bedside. The use of the clinical environment in dentistry education is extremely important in terms of increasing the speed of students' experience and practice.[5,6] This process is quite difficult for educators as well as students.[7] Besides, during the pandemic period, the movement

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area of the trainers is very limited. Even decision-making processes have been quite painful due to the fluctuating course of the pandemic.

The Ministry of Health General Directorate of Health Services recommended that dentists only perform emergency treatments and postpone non-urgent procedures due to the pandemic in article 3 of the letter on the postponement of elective procedures and other measures to be taken, dated 17.03.2020 and numbered 14500235-403.99 / 00114959156. In this context, with the start of the Covid-19 epidemic, face-to-face undergraduate education was suspended in our Faculty on March 16, 2020, based on the relevant YÖK (Higher Education Institution) decision. Distance education and theoretical and practical training continued until the end of the 2019-2020 academic year. On July 9, 2020, the Study Guide and Infection Control Measures in Health Institutions in the COVID-19 Pandemic were published by the Ministry of Health.[5] In our Faculty, as of July, interrupted patient treatments, except for emergency treatments, were carried out in qualified booths prepared following the relevant guidelines of the Ministry of Health.

As of July 2020, the triage practice was initiated at the admission of patients to our Faculty, and after taking fever measurements and anamnesis, the patient was examined by the on-duty physician in the patient admission unit, and limited patient entry to our Faculty was provided hourly. Due to the very low number of cases in our faculty clinics, where one-third of the capacity is worked in July - October, on October 5, 2020, clinical students in grades 4 and 5 were called to the Faculty. Priority in internship practices was given to internships that could not be taken in the previous academic year. By keeping the number of dams low, the student was provided with training as a practitioner-observer. The tools and equipment used by students during clinical practices are provided by our faculty, and the sterilization and cleaning of the units are carried out by our faculty staff.

The aim of the present study to reveal the perspectives and satisfaction level of practice training of 4th and 5th-grade clinical students in the 2020-2021 Education and Training year at Tokat Gaziosmanpaşa University Faculty of Dentistry. The hypothesis of the study was established that clinical students' level of anxiety about covid-19 is low and their level of satisfaction with their internship training is high.

Methods

The present study was carried out with the number of "21-KAEK-029" permission of the Clinical Research Ethics Committee of Medical School of Tokat Gaziosmanpaşa University.

In our Faculty clinics, dentistry service has been continued based on the relevant circulars of YÖK (Higher Education Institution) and the Ministry of Health, which are constantly updated during the pandemic process, the algorithms of the Ministry of Health regarding COVID-19, the study guide of the Ministry of Health COVID-19 pandemic and the infection control methods guide. As of October 5, 2020, our 4th and 5th-grade students were kept in clinics for a limited time with divided groups and started their internship training at the bedside. For this prospective study, clinical students were asked to fill a volunteer survey (Table 1). In the questionnaires using the five-level Likert Scale (I totally agree, I agree, I partially agree, I disagree, I strongly disagree). The last question was asked differently to the 4th and 5th-grade students, and the 5th-grade students said, "If I graduated today, I would feel qualified as a dentist". It was aimed to learn the level of participation to the 4th-grade students with the statement "I think distance education will be sufficient in completing my dentistry education".

In the study, the required sample size was determined as approximately 145 with 80% power, 0.5% error level, and 0.03 effect size. The distribution of qualitative variables according to the groups was analyzed statistically with the Pearson chi-square test. Statistical

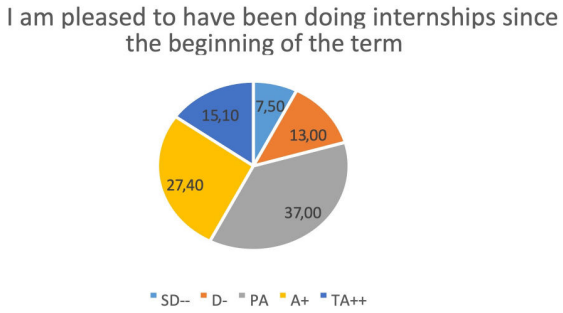

Figure 1. Presentation of the answers to the question "I am pleased to have internships since the beginning of the term" on the pie chart.

significance level was determined as $p < 0.05$. Statistical analysis of the data obtained was made using the SPSS V.20 package program (SPSS for Windows, Version 20; SPSS Inc, Chicago, USA).

Results

It has been observed that the students who answered "I think the practices I do at the bedside are sufficient in my internships" are mostly fourth-grade students with the answer "I disagree (34.9%) and strongly disagree (11.6%). The answers given to the question "I think the practices I do at the bedside are sufficient in my internships" showed a statistically significant difference between 4th and 5th-grade students ($p < 0.001$). There was no significant difference between the other answers ($p < 0.05$).

Presentation of the answers to the question "I am pleased to have internships since the beginning of the term" on the pie chart (Figure 1). Presentation of the answers to the question " Covid-19 is very risky in terms of Dentistry" on the pie chart (Figure 2).

Discussion

Due to the results (Figure 1 and Figure 2); the hypothesis of the study'-clinical students' level of anxiety about covid-19 is low and their level of satisfaction with their internship training is high-was accepted. Dentistry undergraduate education is a practice-oriented education. In this process, Covid-19 provided a limited range of motion for educators in student education. The processes experienced in the Covid-19 pandemic were dynamically monitored during the March-December 2020 process, and necessary protective measures were taken for our intern students. In the Faculty of Dentistry of Tokat Gaziosmanpaşa University, the internship practice training of 4th and 5th-grade undergraduate students in the 2020-2021 Education and Training year was carried out by modifying them with diluted groups under pandemic conditions and continues.

Given the question "My family is worried about my internship"-answers have been that agree (%27,40), and totally agree (%40,40) was found highly percentage. This may be due to the increase in cases seen in Tokat province especially in November.

In our faculty, internships are performed as Prosthetics and Oral and Maxillofacial Surgery major clinical practice for two months-, and others as small clinical practice for -one month. During the clinical practice, the students were divided into small groups (as five or six students), and in each department, the student shift method was worked as much as the cabin allocated to the students. Between October and December, a fourth and fifth-grade student was diagnosed with covid-positive and again two fifth-grade students were quarantined by contact. Between 5 October and 20 December, 10 of our staff, 3 of whom are dentists, 7 of which are clinical support staff, were diagnosed with covid-positive. It can be said that students in the clinical environment take the situation seriously.

Even the examination was not carried out except in the cabins,

Table 1. Questions of "Dentistry internship applications covid-19 relationship" survey

	Dentistry internship applications covid-19 relationship
1.	I am pleased to have been doing internships since the beginning of the term.
2.	I think that the applications I do at the bedside during my internships are sufficient.
3.	Covid-19 infection also carries a risk for dentistry just like other infections.
4.	Covid-19 infection is very risky for dentists.
5.	I can access the necessary personal protective equipment during my internships.
6.	I feel safe in terms of infection control during my internships.
7.	My family is worried about my internship.
8.	I am pleased to choose the dentistry profession.
9.	I chose the dentistry profession of my own will.
10.	I think distance education will be sufficient in completing my dentistry education (for 4th grade). If I graduated today, I would feel qualified as a dentist (for 5th degree)

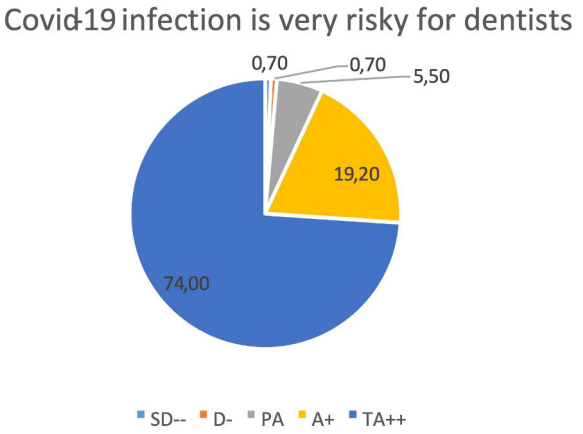

Figure 2. Presentation of the answers to the question " Covid-19 is very risky in terms of Dentistry" on the pie chart.

and after each patient, the physician was disinfected with the disinfectants used in the disinfection of the operating rooms in the cabin he worked. Also, all clinical staff was given washable gowns daily and their cleaning was maintained by our Faculty. Again, a protective N 95 mask was given to each employee once a week. Protective overalls have been supplied and given to the personnel who wish. In this way, the necessary personal protective equipment was supplied by our faculty, and the operation continues in this way. They protected themselves better. At the same time, they were away from the social environment by being in school.

Given the question "If I graduated today, I would feel qualified as a dentist (for 5th degree)"-answers have been that agree (%22,10), and totally agree (%23,40) was been half-and-half. Following the students of the faculties who continue their education online on social media may have encouraged the students. In the last year, it includes training with intensive bedside practices in dentistry education. Communicating with a large number of patients is very important in increasing professional competence. The main limitation of our survey is that it is a small-scale study. It sets an example for larger-scale studies by adding different faculty-clinical students.

Conclusion

It was observed from the results that the satisfaction of the clinical students with their education was at a satisfactory level.

Author Contributions

All authors have contributed to; conception and design of the study, data collection and analysis, writing the manuscript, approval of the final version to be submitted.

Conflict of Interest

Authors declare that they have no conflict of interest.

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