



ORIGINAL RESEARCH ARTICLE

Evaluation of Undergraduate Dental Students' Perspective on Distance Education Model in the Coronavirus (Covid-19) Pandemia

Gediz Geduk^{ib} , Çiğdem Şeker^{ib} , Hatice Biltekin^{ib} * and Emre Haylaz^{ib}

Department of Oral and Maxillofacial Radiology, Zonguldak Bulent Ecevit University, Zonguldak, Turkey

*Corresponding Author; dthaticebiltekin@gmail.com

Abstract

Purpose: The aim of this study is to question and evaluate the perceptions of 3rd, 4th and 5th year undergraduate dental students towards distance education practices and the roles of faculty members in the implementation of education during the Covid-19 pandemic.

Materials & Methods: An online survey was applied to 149 volunteers, consisting of 3rd, 4th and 5th year undergraduate dental students. The survey composed of 12 questions about distance education and shared from "Google Forms" application. Data analysis was done with SPSS 22.0 Packet Data Program.

Results: One hundred forty-nine undergraduate dental students, including 54 third-year students, 60 fourth-year students and 35 fifth-year students, answered the survey on a voluntary basis. Upon this, each answer was examined separately, and efforts were made to reach conclusions about the distance education model. When results were evaluated, the majority of the students (40.9%) who participated in the survey reported that the distance education model contributed to the theoretical lessons, when adequacy of the practical training was assessed, it was concluded that distance education was "Absolutely Inadequate" at with a 79.9 percentage

Conclusion: As a result of the study, most of the students found the distance education model sufficient for theoretical courses, but insufficient for practical education and found traditional practical education more advantageous.

Key words: covid-19; dentistry; distance education.

Introduction

COVID-19 infection (SARS-CoV-2) emerged as a new type of acute respiratory disease in China in December 2019 and spread all over the World.¹ The new coronavirus outbreak was declared as an "International Public Health Emergency"², which is the highest alert level of World Health Organization (WHO), and as pandemic on March 11.

Turkey is included in many countries that began to take extraordinary preventions and restriction applications with the declared pandemic. In addition to all economic, social and travel restrictions, certain preventions have been taken in the field of active education and training due to the pandemic. To prevent the spread of the pandemic by breaking the chain of transmission of the Covid-19, as in many countries, in Turkey, it was decided to temporarily shut down educational institutions starting from 25 March. For the education and training activities to continue in Turkey, the Council of Higher Educa-

tion took quick action and decided to switch to distance education for the 2020 spring term. With the start of distance education applications in many countries around the world, the definition of education has started to be discussed again, and the needs of the current generation to measure and evaluate the gains from these distance education applications have come to the fore. The definition of distance education, according to the United States Distance Education Association (USDLEA), is the delivery of education to distant students with the help of electronic devices such as satellite, video, sound graphics, computers and multimedia technology.³ In distance education practices, since the educator and the student are geographically distant from each other, electronic tools or written materials and printed materials should be used in the education program. Therefore, with distance education, many factors such as buildings, classrooms, teachers, and educational materials that limit student capacity can be prevented.⁴ Many universities in Turkey with various associate degree, undergraduate,



graduate, and certificate programs have been implementing distance education for many years. The rapid transition to distance education in all educational institutions due to the pandemic has shown that there are some inadequacies of online education. Furthermore, it has been observed that not only text-based contents (electronic book, lecture notes, etc.), but also content that can attract students' attention visually and aurally (video, sound, animation, simulation, etc.) should be developed.

Dentistry education generally consists of three parts, these are theoretical courses, simulation laboratory courses, and clinical skills training.⁵ It is easier to teach theoretical courses online, and activities can be carried out within the scope of distance education with applications such as internet-based communication, video conference applications, and educational blogs.⁶ The second part, preclinical laboratory practices, is a simulation laboratory training where the student practices on models after a demo application traditionally performed by instructors. In this section, where student work should be controlled step by step by the instructors, there has been a rapid transition to online education without the necessary infrastructure due to the pandemic. Third and most importantly, clinical skills training is the most risky training in terms of COVID-19 transmission, where the undergraduate dental student is in close contact with the patient and the trainer⁵, as the virus can be transmitted directly through coughing, sneezing and droplets, or indirectly through oral, nasal and eye mucosa contact.^{7,8} Therefore, internship training has been postponed until a later date.

With the integration of distance education into dental education, various methods have begun to be applied in faculties. These applications are mostly online interview applications and theoretical lectures, demo videos of practical applications, and various homework-forum applications.

To determine the quality, contributions, and limitations of this education, students' opinions and ideas are very important in addition to the theoretical exams and homework given to students remotely. With the feedback received from students, the quality of distance education, which is thought to continue, can be increased and a distance education model can be developed with more qualified applications. In this context, the perceptions of undergraduate dental students towards distance education practices and the roles of faculty members in the implementation of education were questioned through a survey, and it was aimed to make new suggestions and improvements for dentistry education.

Materials and Methods

This research, was conducted with the approval of the Non-Interventional Clinical Research Ethics Committee (2020/24, decision number) which was planned as a survey study, was carried out with the voluntary participation of students from the Faculty of Dentistry at XXX University. Since they received both theoretical and practical education within the distance education program, the survey was applied to the 3rd, 4th and 5th year undergraduate dental students. Before the survey, students were informed about the survey, and a voluntary basis was sought.

Survey Design

In this survey prepared by considering the literature⁹, in the first part, the period of students (3rd, 4th or 5th grade) is questioned, while in the second part, there is a section consisting of twelve questions about distance education (Figure 1).

The entire survey application was prepared using the "Google Forms" application, and students who volunteered to participate in the study were reached by sharing the survey link. The survey link remained active for 2 months and volunteer students were asked to respond in a timely manner. In the second part, the participants were asked about the contribution of distance education to students' theoretical and practical knowledge, the adequacy of the faculty in terms of theoretical and practical courses in the distance education model, and the technical problems experienced. In addition, students were asked to compare the advantages of distance education and face-to-face education in the process of participating in distance education and participating in exams. In the questions consisting of six answer options, the first five options contain graded answers to the question asked (I strongly disagree, I disagree, I am not sure, I strongly agree, I agree), while the last option was prepared as a suggestion option that enables the participants to state their suggestions.

Statistical Analysis

A data set was created in line with the answers given by the survey participants, and frequencies were measured on the data set. SPSS 22.0 Software Package Program (SPSS 22.0 Software Package Program, Inc. Chicago, IL, USA) was used as statistical software in the study.

Results

In our faculty, which has 108 students in the 3rd grade, 85 students in the 4th grade and 73 students in the 5th grade, students were asked to participate on a voluntary basis. One hundred forty-nine students, including 54 from 3rd grade, 60 from 4th grade and 35 from 5th grade students, answered the survey voluntarily. According to the answers, it was tried to determine students' perspectives on distance education.

When the answers to the first question (Table 1) "Do you think the distance education model is sufficient for theoretical courses" are examined, it is understood that the majority of the total answers given by the students are "Sufficient" with 40.9% (n=61), and then "I am not sure" with 30.9% (n=46). The answer "Absolutely Unsufficient" was preferred by 5 of the total participating students (3.4%).

None of the students in all classes answered "Absolutely Sufficient" to question 2 (Table 1) "Do you think the distance education model is sufficient for practical lessons?" 3rd and 4th-grade students did not prefer the answer "Sufficient" at all, but one of the 5th-grade students answered "Sufficient". 79.9% (n=119) of the students in all class categories and total think that the distance education model for practical lessons was definitely insufficient.

In Table 2-question 3 "Considering the theoretical courses, do you agree that faculty members are sufficient during distance education?", 50.3% (n=75) of the students participating in the survey agree that the faculty members are sufficient in distance education. In the second place, it is seen that the students are mostly undecided with 30.9% (n=46). Also, 4 students expressed their opinions with the answer "Other". Some of the student defined their views as "I agree for some teachers", "It depends on the teacher" and "Our teachers are doing their best, but according to the face-to-face training, the efficiency is definitely decreasing".

When question 4 (Table 2) "Considering the practical lessons, do you agree that the faculty members are sufficient during the distance education?" is examined, students largely disagree that the faculty members are sufficient in practical

1. Do you think the distance education model is sufficient for theoretical courses?
A) Absolutely sufficient B) Sufficient C) Not sure D) Insufficient E) Definitely insufficient
2. Do you think the distance education model is sufficient for practical lessons?
A) Absolutely sufficient B) Sufficient C) Not sure D) Insufficient E) Definitely insufficient
3. Considering the theoretical courses, do you agree that faculty members are sufficient during distance education?
A) I strongly agree B) I agree C) Not sure D) I disagree E) Definitely disagree F) Other
4. Considering the practical lessons, do you agree that the faculty members are sufficient during the distance education?
A) I strongly agree B) I agree C) Not sure D) Disagree E) Definitely disagree F) Other
5. Do you think you have technical difficulties in accessing lessons and exams during the distance education process?
A) Very frequently B) Usually C) Time to time D) Rarely E) Never
6. When you compare it with formal education, do you think you can achieve good and sufficient concentration in the distance education model?
A) Absolutely sufficient B) Sufficient C) Not sure D) Insufficient E) Definitely insufficient
7. Do you think you can participate in the lessons adequately in the distance education model process?
A) Absolutely sufficient B) Sufficient C) Not sure D) Insufficient E) Definitely insufficient F) Other
8. Do you think that the understanding of distance education is more advantageous than formal education?
A) Absolutely advantageous B) Advantageous C) Not sure D) Disadvantageous E) Definitely disadvantageous F) Other
9. Does the disruption of practical applications in the distance education model cause you to worry about professional competence in the future?
A) Absolutely concerned B) Usually worried C) Not sure D) Sometimes worried E) No concerns
10. Do you think the distance education model should be made continuous?
A) Must be for some theoretical courses B) Must be for practical courses C) Practical lessons face-to-face, theoretical lessons should be distance
D) Must be fully face-to-face education E) Must be totally distance education F) Other
11. Do you think remote exams contribute to learning and evaluation?
A) Absolutely contributed B) Contributed usually C) Not sure D) No contribution E) Definitely no contribution F) Other
12. Do you think online lessons are more efficient than face-to-face lessons?
A) Absolutely more efficient B) I can get efficiency C) Not sure D) I can't take efficiency
E) I can't take any efficiency F) Other

Figure 1. Survey questions and design

lessons (32.9%, n=49). Some students who chose other option answered "I cannot answer because there is no internship." and "It may not be the right approach to decide whether the lecturers will be sufficient or not, as practical lessons cannot be done."

When authors examine Table 3–5th question "Do you think you have technical difficulties in accessing lessons and exams during the distance education process?", we see that the majority of students (51.0%, n=76) occasionally experience technical problems in accessing distance education. On the other hand, it is seen that only 9 (6.0%) students did not experience any technical problems.

In the analysis of the 6th question "When you compare it with formal education, do you think you can achieve good and sufficient concentration in the distance education model?" (Table 4), the majority of the students stated that they could provide better and sufficient concentration in traditional education than distance education. Against this, 40 (26.8%) participants were undecided.

When question 7 (Table 4) "Do you think you can participate in the lessons adequately in the distance education model process?" is examined, it is seen that 65 of the students (43.6%) can provide sufficient participation in distance education. It is observed that 24 students (16.1%) were indecisive. One student expressed his opinion as "Since I cannot provide the same disciplinary environment, I follow the courses mostly from the recordings instead of online."

When question 8 "Do you think that the understanding of distance education is more advantageous than formal education?" is examined (Table 5), the great majority (34.9%, n=52) think that distance education is unfavorable compared to traditional education. The number of students who find it advantageous and definitely advantageous is 14 in total and the number of undecideds is 43 (28.9%). The opinion of the student who chose the "other" option was "It can be advantageous in theoretical lessons."

As can be seen in the 9th question (Table 6) "Does the disruption of practical applications in the distance education model cause you to worry about professional competence in the future?", most of the students participating in the survey (72.5%, n=108) are definitely worried about the interruption of practical applications. On the other hand, none of the respondents chose the "I have no worries" option. One student from each class was undecided.

When question 10 "Do you think the distance education model should be made continuous?" (Table 7) is analyzed, it is seen that the number of participants who want practical lessons face-to-face and theoretical lessons with distance education is more (39.6%, n=59). None of the participants wanted the practical lessons to be in distance learning. Distance learning option for some theoretical courses ranks first in 4th grade compared to 3rd and 5th class. The opinion of one of the 5th class students was "Both the practice and theory of our clinical courses must be through face-to-face training. Some courses such as anatomy should be face-to-face, but organic chemistry, elective courses, physics courses should be with distance education."

When authors look at question 11 "Do you think remote exams contribute to learning and evaluation?" (Table 8), 47 (31.5%) students in total were undecided about the contribution of remote exams to learning and evaluation. A total of 50 students think that it usually and definitely contributes. The student who chose the other option answered "It is not related to the moment of the exam, but the decrease in the severity of the exams, unfortunately, causes a decrease in the study concentration." as stated.

When the answers to the 12th question "Do you think online lessons are more efficient than face-to-face lessons?" are

examined, it is seen that the participating students can get efficiency with a total of 34.2% (n=51). This is followed by the undecided option with a proportion of 29.5% (n=44). The number of students who think they cannot get any efficiency is 14 (9.4%) in total. 2 (1.3%) students conveyed their opinions as "It changes according to the way the instructor handles the lesson and the material (slide, video)." and "Some classes are more efficient online."

Discussion

In a study conducted by Genç et al., 23.1% of the students being educated at the Faculty of Theology stated that they were satisfied with distance education, while the majority of them were not satisfied with distance education.⁹ Also, some studies conducted on Faculty of Nursing, students did not report a significant difference in student satisfaction between web-based education and face-to-face education.¹⁰ In authors study, it can be said that there is a positive opinion of dentistry students for distance theoretical education.

When looking at the adequacy of distance education in terms of practical lessons, it was concluded that distance education is "Definitely Insufficient" with a proportion of 79.9% compared to theoretical lessons. No student has chosen the "Absolutely Sufficient" option, which highlights the importance and necessity of face-to-face education in dentistry for practical lessons. Although it has been shown in some studies that distance education is sufficient and useful in terms of theoretical courses, it has been determined that there are inadequacies and practical failures in distance education in clinical departments, some of which are applied for courses.¹¹ Nevertheless, in another study, the contribution of the distance education model to theoretical lessons was found to be relatively higher than that of professional practices.¹² From this point of view, these two studies support the present survey study. When it comes to applied courses, dissatisfaction and inadequacy results have been observed for students in the current distance education model.

In the present study, students stated that faculty members were sufficient in theoretical lessons in the distance education model, but not sufficient in practical lessons. Özyürek et al. stated that the lessons given by the faculty members through distance education were found to be inefficient by the students, but they stated that it was an important opportunity for individuals who could not access face-to-face education.¹³ According to another study, it was found that the contribution of faculty members to students' theoretical knowledge levels in distance education is higher than their contribution to practice.¹² When the results are examined, it was concluded that students need face-to-face training more, especially in practical training.

As a result of the sudden and rapid transition to distance education, the importance of technology has come to the fore again. Only 9% of the students participating in the survey stated that there were no technical problems in their access to the courses and exams in distance education. Birişçi et al. emphasized that the distance education process was negatively affected due to internet connection and various technical problems.¹⁴ In another similar study, in-service training was provided by video conferencing method and teachers' opinions were taken afterward. It has been determined that teachers' opinions about in-service training through distance education are negative due to reasons such as lack of infrastructure and interaction.¹⁵

When compared with traditional education, 36.2% of the students said "Insufficient" and 24.2% preferred the expression "Definitely Insufficient" when asked if you can provide

Table 1. Distribution of the answers to question 1 and 2 in total and based on the students' grade

Answer	Question 1				Question 2			
	3 rd Grade	4 th Grade	5 th Grade	Total	3 rd Grade	4 th Grade	5 th Grade	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Absolutely sufficient	5	0	4	9(6.0)	0	0	0	0(0.0)
Sufficient	19	29	13	61(40.9)	0	0	1	1(0.7)
Not sure	21	17	8	46(30.9)	1	3	1	5(3.4)
Insufficient	7	12	9	28(18.8)	13	4	7	24(16.1)
Definitely insufficient	2	2	1	5(3.4)	40	53	26	119(79.9)
Total	54(100.0)	60(100.0)	35(100.0)	149(100.0)	54	60	35	149(100.0)

Table 2. Distribution of the answers to question 3 and 4 in total and based on the students' grade

Answer	Question 3				Question 4			
	3 rd Grade	4 th Grade	5 th Grade	Total	3 rd Grade	4 th Grade	5 th Grade	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
I strongly agree	5	3	5	13(8,7)	2	0	1	3(2.0)
I agree	22	34	19	75(50,3)	7	6	2	15(10.1)
Not sure	19	18	9	46(30,9)	16	15	11	42(28.2)
I disagree	3	3	1	7(4,7)	17	21	11	49(32.9)
Definitely disagree	3	0	1	4(2,7)	12	17	9	38(25.5)
Other	2	2	0	4(2,7)	0	1	1	2(1.3)
Total	54(100.0)	60(100.0)	35(100.0)	149(100.0)	54	60	35	149(100.0)

Table 3. Distribution of the answers to question 5 in total and based on the students' grade

Answer	3 rd Grade	4 th Grade	5 th Grade	Total
	n	n	n	n (%)
Very frequently	4	0	0	4(2.7)
Usually	3	1	1	5(3.4)
Time to time	28	26	22	76(51.0)
Rarely	14	29	12	55(36.9)
Never	5	4	0	9(6.0)
Total	54	60	35	149(100.0)

Table 4. Distribution of the answers to question 6 and 7 in total and based on the students' grade

Answer	Question 3				Question 4			
	3 rd Grade	4 th Grade	5 th Grade	Total	3 rd Grade	4 th Grade	5 th Grade	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Absolutely sufficient	2	0	3	5(3.4)	4	7	2	13(8.7)
Sufficient	4	8	2	14(9.4)	21	28	16	65(43.6)
Not sure	12	17	11	40(26.8)	7	10	7	24(16.1)
Insufficient	16	26	12	54(36.2)	13	11	9	33(22.1)
Definitely insufficient	20	9	7	36(24.2)	8	4	1	13(8.7)
Other	0	0	0	0	1	0	0	1(0.8)
Total	54(100.0)	60(100.0)	35(100.0)	149(100.0)	54	60	35	149(100.0)

Table 5. Distribution of the answers to question 8 in total and based on the students' grade

Answer	3 rd Grade	4 th Grade	5 th Grade	Total
	n	n	n	n (%)
Absolutely advantageous	1	0	2	3(2.0)
Advantageous	3	4	4	11(7.4)
Not sure	18	12	13	43(28.9)
Disadvantageous	13	31	8	52(34.9)
Definitely disadvantageous	19	12	8	39(26.2)
Other	0	1	0	1(1.7)
Total	54	60	35	149(100.0)

good and sufficient concentration in the distance education model. In another study, 36.2% of the students said "I cannot concentrate at all" to a similar survey question, while 34.9% chose the option "I cannot concentrate".⁹ This situation shows us that for some students, concentration is provided in school-faculty environments where traditional education is provided,

not at home or in different settings.

In the present study, it was found that the participation of most of the students in distance education classes was sufficient. In another study, the number of students who could not participate in distance education due to computer and technical problems were found to be in the majority.¹⁶ In another

Table 6. Distribution of the answers to question 9 in total and based on the students' grade

Answer	3 rd Grade	4 th Grade	5 th Grade	Total
	n	n	n	n (%)
Absolutely concerned	41	45	22	108(72.5)
Usually worried	10	6	9	25(16.8)
Not sure	1	1	1	3(2.0)
Sometimes worried	2	8	3	13(8.7)
No concerns	0	0	0	0(0.0)
Total	54	60	35	149(100.0)

Table 7. Distribution of the answers to question 10 in total and based on the students' grade

Answer	3 rd Grade	4 th Grade	5 th Grade	Total
	n	n	n	n (%)
Must be for some theoretical courses	13	25	10	48(32.2)
Must be for practical courses	0	0	0	0(0.0)
Practical lessons face-to-face, theoretical lessons should be distance	25	17	17	59(39.6)
Must be fully face-to-face education	16	16	6	38(25.5)
Must be totally distance education	0	2	1	3(2.0)
Other	0	0	1	1(0.7)
Total	54	60	35	149(100.0)

Table 8. Distribution of the answers to question 11 in total and based on the students' grade

Answer	3 rd Grade	4 th Grade	5 th Grade	Total
	n	n	n	n (%)
Absolutely contributed	3	0	2	5(3.4)
Contributed usually	12	20	13	45(30.2)
Not sure	15	23	9	47(31.5)
No contribution	14	7	7	28(18.8)
Definitely no contribution	10	9	4	23(15.4)
Other	0	1	0	1(0.7)
Total	54	60	35	149(100.0)

study, it was stated that the most important reason that prevented half of the students from following the online course in distance education was the disconnection of the internet connection, and the other reasons were generally due to situations connected to the home environment.¹³ This type of non-participation due to technical problems is a sad problem in today's technology. The fact that there are still such technical problems in the age we call the 'age of technology' shows us that the necessary importance is still not given to some issues related to education. While 34.9% of the students participating in the survey think that the distance education model is "Disadvantageous" compared to face-to-face education, 26.2% of them stated their opinions as "Definitely disadvantageous". In a study they conducted by Keskin et al, they found that distance education was advantageous in terms of allowing students to learn information at their own pace and to receive information at the specified time, but the students' not getting enough feedback, thinking that they could not express themselves sufficiently and forgetting the subjects they listened quickly show that this education model has its disadvantages. They concluded that taking only the information and grasping the information without practicing the students could cause them to forget the subjects quickly.¹² In the study of Özyürek et al., students found it advantageous in terms of listening to lessons as much as they wanted in distance education, but they found it disadvantageous in terms of not expressing themselves adequately.¹³

After two semesters of distance education, it was evaluated whether the students were sufficient and satisfied with a practical education. In addition to the feedback received from many students, 72.5% of the students participating in the survey in the present study stated "I am absolutely concerned" about

professional competence in the future.

The answers given by the students regarding the continuity of the distance education model were found as "It should be for some theoretical lessons" with a proportion of 32.2% and "Theoretical Courses Should be for Distance Education and Practical Courses Face to Face" with a proportion of 39.6%. In a study, it was concluded that the distance education model will never replace face-to-face education, but it is seen as an education model that can be applied immediately after school holidays in cases such as earthquakes, floods, natural disasters, and epidemics.¹⁶ Although it was found in another study that the distance education model could be sufficient for theoretical courses, it was stated that face-to-face training was needed for departments with practical and laboratory courses in their curriculum.¹¹ In another study, it was found that the teaching method was primarily mixed (37.93%) and then face-to-face (34.05%) education was preferred as the teaching method.¹⁷ In the study conducted by Özyürek et al., was determined that distance education did not need to become widespread, and more than half of the participants (54.5%) stated that the dissemination of distance education would not be beneficial for society.¹³

While 30.2% of the students participating in the survey evaluated that the distance education model contributed to learning and evaluation as "Usually Contributed", 31.5% were undecided. Besides, 34.2% of the students preferred "I can get efficiency" from online courses, and 29.5% preferred the option "I am undecided". In a study, 11.1% of the students said "I can work efficiently" with distance education, while 11.9% said I am undecided.⁹ In another study, it was observed that most of the students (84.4%) did not find distance education as effective as face-to-face education, but more than half of the students (59.5%) stated that distance education was an al-

ternative solution.¹²

As a result of the distance education model, which lasted for a year and two semesters under pandemic conditions, the opinions taken from the students showed that; Although distance education is a method that can be used in extraordinary situations and access difficulties, especially in faculties where practical education is very important, such as Dentistry education, it is likely to cause serious problems and dissatisfaction in its continuous use. If this method becomes permanent, the need for more serious trainings and the preparation of infrastructures was once again emphasized by the students. The authors hope that the negative effects on education of the pandemic process, which deeply affects the whole world, will be quickly compensated and more positive and qualified education methods will be integrated into our lives, especially in institutions that provide practical training.

Conclusion

While students find distance education sufficient for theoretical lessons, the majority of them find distance education insufficient in practical education. According to students, faculty members were found to be insufficient in the distance education model, especially in practical courses, and it is thought that faculty members who are accustomed to traditional education, like students, were introduced to the distance education model suddenly and without preparation. Considering the advantages of distance education, the majority of students find traditional education more advantageous.

Author Contributions

Gediz GEDUK; constructing the hypothesis or idea of research and/or article, taking responsibility in logical interpretation and conclusion of the results, reviewing the article. Çiğdem ŞEKER; reviewing the article, organizing and supervising the study design. Hatice BİLTEKİN and Emre HAYLAZ; taking responsibility in patient follow-up, collection of relevant biological materials, data management and reporting, execution of the experiments, taking responsibility in the writing the manuscript.

Conflict of Interest

There are no conflicts of interest in the text of the authors, including financial, advisory, institutional and other relations which may lead to prejudice or conflict of interest.

Authors' ORCID(s)

G.G. 0000-0002-9650-2149
C.S. 0000-0001-8984-1241
H.B. 0000-0001-9668-0888
E.H. 0000-0001-7330-9525

References

1. Tizaoui K, Zidi I, Lee KH, Ghayda RA, Hong SH, Li H, et al. Update of the current knowledge on genetics, evolution, immunopathogenesis, and transmission for coronavirus disease 19 (COVID-19). *Int J Biol Sci.* 2020;16(15):2906-2923. doi:10.7150/ijbs.48812.
2. Domingues CMAS. Challenges for implementation of the COVID-19 vaccination campaign in Brazil. *Cad Saude Publica.* 2021;37(1):e00344620. doi:10.1590/0102-311x00344620.
3. USDLA [Web Page]; 2015. Available from: http://www.usdla.org/04_research_info.html.
4. Ozbay O. Dünyada Ve Türkiye'de Uzaktan Eğitimin Güncel Durumu. *Uluslararası Eğitim Bilimleri Dergisi.* 2015;5:376-394.
5. Chang TY, Hong G, Paganelli C, Phantumvanit P, Chang WJ, Shieh YS, et al. Innovation of dental education during COVID-19 pandemic. *J Dent Sci.* 2021;16(1):15-20. doi:10.1016/j.jds.2020.07.011.
6. Jum'ah AA, Elsalem L, Loch C, Schwass D, Brunton PA. Perception of health and educational risks amongst dental students and educators in the era of COVID-19. *Eur J Dent Educ.* 2021;25(3):506-515. doi:10.1111/eje.12626.
7. Garner JS. Guideline for isolation precautions in hospitals. The Hospital Infection Control Practices Advisory Committee. *Infect Control Hosp Epidemiol.* 1996;17(1):53-80. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/8789689>. doi:10.1086/647190.
8. Lu CW, Liu XF, Jia ZF. 2019-nCoV transmission through the ocular surface must not be ignored. *Lancet.* 2020;395(10224):e39. doi:10.1016/S0140-6736(20)30313-5.
9. Gen MF, Gumrukcuoglu S. Koronavirüs (Covid-19) Sürecinde İlâhiyat Fakültesi Öğrencilerinin Uzaktan Eğitime Bakışları. *Electronic Turkish Studies.* 2020;15:403-422.
10. Jang KS, Hwang SY, Park SJ, Kim YM, Kim MJ. Effects of a Web-based teaching method on undergraduate nursing students' learning of electrocardiography. *J Nurs Educ.* 2005;44(1):35-9. doi:10.3928/01484834-20050101-07.
11. Kahraman ME. COVID-19 salgınının uygulamalı derslere etkisi ve bu derslerin uzaktan eğitimle yürütülmesi: Temel tasarım dersi örneği. *Medeniyet Sanat Dergisi.* 2020;6:44-56.
12. Keskin M, Ozer Kaya D. COVID-19 Sürecinde Öğrencilerin Web Tabanlı Uzaktan Eğitime Yönelik Geri Bildirimlerinin Değerlendirilmesi. *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi.* 2020;5(2):59-67.
13. Ozyürek A, Begde Z, Yavuz NF, Ozkan I. Uzaktan eğitim uygulamasının öğrenci bakış açısına göre değerlendirilmesi. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi.* 2016;6:595-605.
14. Birisci S. Video konferans tabanlı uzaktan eğitime ilişkin öğrenci tutumları ve görüşleri. *Öğretim Teknolojileri ve Öğretmen Eğitimi Dergisi.* 2013;2:24-40.
15. Arslan H, Sahin I. Hizmet İçi Eğitimlerin Video Konferans Sistemiyle Verilmesine Yönelik Öğretmen Görüşleri. *Öğretim Teknolojileri ve Öğretmen Eğitimi Dergisi.* 2013;2:34-41.
16. Bayburtlu YS. Covid-19 pandemi dönemi uzaktan eğitim sürecinde öğretmen görüşlerine göre Türkçe eğitimi. *Electronic Turkish Studies.* 2020;15(4).
17. Kaysi F. Covid-19 Salgını Sürecinde Türkiye'de Gerçekleştirilen Uzaktan Eğitimin Değerlendirilmesi. 5th International Scientific Research Congress (IBAD - 2020). 2020.