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STUDENT VIEWS ON DISTANCE EDUCATION OF ANATOMY COURSE IN THE COVID-19 PROCESS

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Abstract: In the study, it was aimed to evaluate the effects of distance education on medical education during and after the covid-19 period from the perspective of students. 'Can distance education still be used in medical anatomy training after the pandemic has passed?' or 'can feedback from remote anatomy training bring adaptations to the hybrid anatomy training model? Clarification of the questions can also increase the objectives of this study. In the study, questions about distance education in the covid-19 period were asked to the first and second year students of the Faculty of Medicine of Kafkas University and were evaluated in the 5-point likert test. In addition, the answers given by the first and second year students were compared with the chi-square test. Chi-square test results were significant in the comparison of first and second grades in the first (P=0.029), second (P=0,003) and thirteenth (P=0.16) questions. The answers given by medical students are very important for the future of medical education. The distance education model during and after Covid-19 actually offered an application area for the future of medical education. Important opinions were also received regarding hybrid education.

Keywords: Distance education, Covid-19, Anatomy education, Hybrid education

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1. Introduction

The covid-19 pandemic has negatively affected the whole world in both health and socio cultural terms (Batubara, 2021). One of the areas badly affected by this pandemic is medical education. The teaching of anatomy education, which is a basic building block of the medical school, with distance education has made the understanding and seriousness of the course very difficult (Adedoyin and Soykan, 2023). The anatomy lesson is based on cadaver dissection and learning the cadaver with tactile sense (Ghosh, 2017). The theoretical detail of the lesson is understood with the practice lesson. The three-dimensional structure and mystery of the human body is enlightened by anatomy practice lessons. Besides, cadaver is the first patient of medical students. Considering all these, anatomy lesson is the foundation of the medical school lessons and it should be based on a solid ground (Estai and Bunt, 2016). Although the cadaver has been the main part of anatomy education to date, plastinate and models, 3D digital software and 3D-printing models are the most up-to-date tools used in anatomy education in recent years. Almost all of these anatomy education tools maximize student satisfaction by touching or seeing live that is, by activating the senses (McMenamin, et al., 2014; Santos et al., 2022).

In this study, the importance of student views regarding the distance education of anatomy lessons during the covid-19 pandemic process is emphasized. Student views are very important to direct medical education. 'How should distance education be in the medical world?' and 'how effectively should it be used?' questions have always been in mind. In particular, the covid-19 process has actually created awareness about distance education. Supporting the effects of distance education with student views on the Covid-19 process can be an important study for the literature and can give an objective idea about the future of medical education (Adedoyin and Soykan, 2023). However, the difference of this study from other studies in the literature is that distance education is an emergency education model that is used even in earthquake disasters, and its advantages are blended with hybrid education and its routine usability is clarified with student opinions.

2. Material and Methods

The study was carried out on the first and second year medical students of Kafkas University Faculty of Medicine in the 2019-2020 academic years. Picture of lecture video in distance education, which includes the presentation of the lesson in a laboratory environment, is presented in Figure 1. Picture of lecture video introducing the laboratory materials of the course in distance education is presented in Figure 2. Picture of anatomy practice lesson video in distance education, explaining the lesson in cadavers is presented in Figure 3. The data collection forms used in the research was sent

to the students over the web. 161 students (1st grade 84, 2nd grade 77) answered the questions in the data collection form. Data collection questions were prepared with a five-point Likert scale (strongly agree, agree, undecided, disagree, completely disagree) (Çetkin et al., 2016; Bahşi et al., 2021). The answers from the students were transferred to the excel file and frequency analysis was performed (Table 1 and Table 2).

2.1. Statistical Analysis

Windows SPSS version 22.0 software program was used for statistical analysis. Descriptive statistics for categorical variables were expressed as frequency and percentage values. In the analysis of the categorical data, the chi-square test was performed (compared with each other) for the answers given by the first and second year students. The results were evaluated within the 95% confidence interval and the P<0.05 value was considered significant. Chi-square test results were significant in the comparison of first and second grades in the first (P=0.029), second (P=0,003) and thirteenth (P=0.16) questions (Table 3).

Figure 1. Lecture video in distance education. which includes the presentation of the lesson in a laboratory environment.

Figure 2. Lecture video introducing the laboratory materials of the course in distance education.

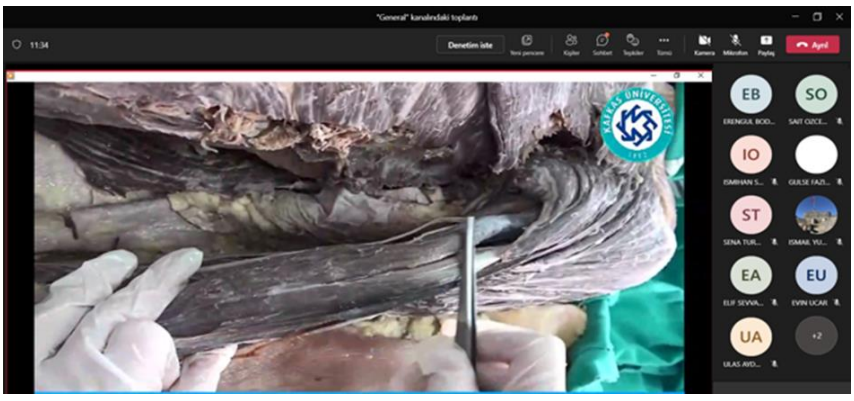

Figure 3. Anatomy practice lesson video in distance education. explaining the lesson in cadavers.

Table 1. Percentage of frequency (f) that first-year students gave to the questions

First year of the medicine faculty students n:84	Totally Agree (%)	Agree (%)	Undecided (%)	Totally Disagree (%)	Disagree (%)
1-Distance Education is an extremely well-thought-out educational model in Anatomy course.	2.4	10.7	19	28.6	39.3
2-I fully understand everything about anatomy with distance education.	1.2	8.3	8.3	33.3	48.8
3- Anatomy course should be taught with distance education from now on.	2.4	4.8	11.9	47.6	33.3
4-Learning Anatomy Practice lessons from video made up for my lack of subject in the distance education process.	13.1	31	28.6	6	21.4
5-Although learning anatomy practice lessons as online video makes up for my deficiency, practice lessons should be live and in a laboratory environment. Because seeing the truth creates a different perception.	71.4	19	4.8	0	4.8
6-Anatomy practice lessons (via video) can be done entirely by distance education. Lessons can be learned through videos, just like on a cadaver.	1.2	6	11.9	50	31
7-Anatomy practice lessons require three-dimensional-two-dimensional thinking and perception with the sense of touch. Therefore, part of the lesson should be video (distance education) and part of the lesson should be done live in a laboratory environment (hybrid education).	31	42.9	13.1	7.1	6
8-Anatomy theoretical lessons should also be given live in the classroom environment.	27.4	20.2	28.6	10.7	13.1
9-For anatomy theoretical courses, both distance education, live classroom environment and an education model integrated with 3D software can be considered.	25	38.1	23.8	3.6	9.5
10-With distance education, I listen to the lesson more comfortably at home.	14.3	20.2	16.7	31	17.9
11-In distance education, I have technical problems related to the web (internet access, audio and video, etc.).	31	29.8	7.1	13.1	19
12-Since the anatomy theory course requires Latin and a three-dimensional perception, I understand the course better in the classroom (live).	31	25	21.4	14.3	8.3
13-The theoretical part of distance education can replace live education by keeping the narration time longer.	8.3	17.9	20.2	34.5	19
14-I like distance education for the anatomy course, not only is the course duration sufficient, it can be extended.	13.4	22.7	36.8	5.6	21.5

Table 2. Percentage of frequency (f) that second-year students gave to the questions

Second year of the medicine faculty students n:77	Totally Agree (%)	Agree (%)	Undecided (%)	Totally Disagree (%)	Disagree (%)
1-Distance Education is an extremely well-thought-out educational model in Anatomy course.	6.5	24.7	24.7	16.9	27.3
2-I fully understand everything about anatomy with distance education.	3.9	9.1	28.6	15.6	42.9
3- Anatomy course should be taught with distance education from now on.	6.5	7.8	22.1	33.8	29.9
4-Learning Anatomy Practice lessons from video made up for my lack of subject in the distance education process.	7.8	27.3	33.8	7.8	23.4
5-Although learning anatomy practice lessons as online video makes up for my deficiency, practice lessons should be live and in a laboratory environment. Because seeing the truth creates a different perception.	58.4	22.1	15.6	1.3	2.6
6-Anatomy practice lessons (via video) can be done entirely by distance education. Lessons can be learned through videos, just like on a cadaver.	1.3	6.5	18.2	33.8	40.3
7-Anatomy practice lessons require three-dimensional-two-dimensional thinking and perception with the sense of touch. Therefore, part of the lesson should be video (distance education) and part of the lesson should be done live in a laboratory environment (hybrid education).	35.1	29.9	27.3	1.3	6.5
8-Anatomy theoretical lessons should also be given live in the classroom environment.	23.4	26	19.5	9.1	22.1
9-For anatomy theoretical courses, both distance education, live classroom environment and an education model integrated with 3D software can be considered.	26	53.2	14.3	2.6	3.9
10-With distance education, I listen to the lesson more comfortably at home.	14.3	31.2	15.6	14.3	24.7
11-In distance education, I have technical problems related to the web (internet access, audio and video, etc.).	20.8	29.9	11.7	6.5	31.2
12-Since the anatomy theory course requires Latin and a three-dimensional perception, I understand the course better in the classroom (live).	26	24.7	27.3	3.9	18.2
13-The theoretical part of distance education can replace live education by keeping the narration time longer.	9.1	23.4	24.7	11.7	31.2
14-I like distance education for the anatomy course, not only is the course duration sufficient, it can be extended.	14.3	24.7	37.7	6.5	16.9

Table 3. P values of first and second year students' answers to each question with chi-square test

Questions	'P' Values
1-Distance Education is an extremely well-thought-out educational model in Anatomy course.	0.029
2-I fully understand everything about anatomy with distance education.	0.003
3- Anatomy course should be taught with distance education from now on.	0 .154
4-Learning Anatomy Practice lessons from video made up for my lack of subject in the distance education process.	0.759
5-Although learning anatomy practice lessons as online video makes up for my deficiency, practice lessons should be live and in a laboratory environment. Because seeing the truth creates a different perception.	0.110
6-Anatomy practice lessons (via video) can be done entirely by distance education. Lessons can be learned through videos, just like on a cadaver.	0.334
7-Anatomy practice lessons require three-dimensional-two-dimensional thinking and perception with the sense of touch. Therefore, part of the lesson should be video (distance education) and part of the lesson should be done live in a laboratory environment (hybrid education).	0 .054
8-Anatomy theoretical lessons should also be given live in the classroom environment.	0.384
9-For anatomy theoretical courses, both distance education, live classroom environment and an education model integrated with 3D software can be considered.	0.205
10-With distance education, I listen to the lesson more comfortably at home.	0.105
11-In distance education, I have technical problems related to the web (internet access, audio and video, etc.).	0.157
12-Since the anatomy theory course requires Latin and a three-dimensional perception, I understand the course better in the classroom (live).	0.073
13-The theoretical part of distance education can replace live education by keeping the narration time longer.	0.016
14-I like distance education for the anatomy course, not only is the course duration sufficient, it can be extended.	0.966

P= Chi-square test of 1st and 2nd grade students 'P' values.

3. Results

Percentage of frequency (f) that first-year students gave to the questions is given Table 1. In this study, the effect of teaching anatomy lesson with distance education on students was examined. To the first question ('Distance Education is an extremely well-thought-out educational model in Anatomy course.'), both first (39.3%) and second (27.3%) graders highly disagree. To the second question ('I fully understand everything about anatomy with distance education.'), both first (48.8%) and second (42.9%) graders highly disagree. To the third question ('Anatomy course should be taught with distance education from now on.'), both the first (47.6%) and second (33.8%) graders gave a high rate of 'strongly disagree'. To the fourth question ('Learning Anatomy Practice lessons from video made up for my lack of subject in the distance education process.'), both the first (28.6%) and second (33.8%) graders gave a high rate of 'indecision'. To the fifth question, ('Although learning anatomy practice lessons as online video makes up for my deficiency, practice lessons should be live and in a laboratory environment.') because seeing the truth creates a different perception, both the first (71.4%) and second (58.4%) graders gave a high rate of 'I strongly agree'. To the sixth question ('Anatomy practice lessons (via video) can be done entirely by distance education. Lessons can be learned through videos, just like on a cadaver.'), first (50%) graders answered 'strongly disagree' with a high rate, while second (40.3%) graders answered 'disagree' at a high rate. To the seventh question ('Anatomy practice lessons require three-dimensional-two-dimensional thinking and perception with the sense of touch. Therefore, part of the lesson should be video (distance education) and part of the lesson should be done live in a laboratory environment (hybrid education).'), the first (42.9%) graders answered 'I agree' at a high rate, while the second (35.1%) graders answered 'I absolutely agree' at a high rate. To the eighth question ('Anatomy theoretical lessons should also be given live in the classroom environment.'), the first (28.6%) graders answered 'I am undecided' at a high rate, while the second (26%) graders answered 'I agree' at a high rate. To the ninth question ('For anatomy theoretical courses, both distance education, live classroom environment and an education model integrated with 3D software can be considered.') , both the first (38.1%) and second (53.2%) graders answered 'I agree' at a high rate. To the tenth question ('With distance education, I listen to the lesson more comfortably at home.'), both first (20.2%) and second (31.2%) grades answered 'I agree' with a high rate. While first (31%) graders answered 'strongly agree' to the eleventh question ('In distance education, I have technical problems related to the web (internet access, audio and video, etc.).'), the second (31.2%) graders answered 'strongly disagree' with a high rate. While first graders (31%) answered the answer "I strongly agree" to

the twelfth question ('Since the anatomy theory course requires Latin and a three-dimensional perception, I understand the course better in the classroom (live).'), the rate of undecided students is high (27.3%) in the second grade. While the first graders (34.5%) answered the answer "I strongly agree" to the thirteenth question ('The theoretical part of distance education can replace live education by keeping the narration time longer.') at a high rate, the rate of the students who answered "I do not agree" is high in the second grade (31.2%). In the fourteenth question ('I like distance education for the anatomy course, not only is the course duration sufficient, it can be extended.'), both the first (36.8%) and second graders (37.7%) gave a high rate of "undecided" answer.

4. Discussion

In the covid-19 process, the previously existing distance education software has started to be implemented at a great speed. The distance education model has suddenly become the most important part of education life in most workplaces and education lives (Heng and Sol, 2021.).

Even though the covid-19 infection has been overcome to a great extent and normal education life has been returned, this education model still continues to be used. For example, in case of a natural disaster (the earthquake of February 6, 2023 in Türkiye) or in cases where normal education is lacking, the distance education model may be a way to save (Hoşgör et al., 2023).

In this study, the opinions of the first and second year medical students who teach in the covid-19 period about distance education were taken. While the second graders were doing normal education, they suddenly switched to distance education. First-year students met with the medical faculty through distance education. Therefore, there are significant differences in some questions between the two classes.

'Distance Education is an extremely well-thought-out education model in Anatomy.' In response to the opinion, there is a higher level of satisfaction in the second grades than in the first grades, but the number of those who do not want distance education in both grades is high. However, as in the study of Almaghaslah et al., (2018) second-year students are more interested in distance education than first-year students. The reason why first-year students do not want distance education compared to second-year students may be their connection to medical school courses from home and their inability to get to know each other socially.

Both first and second grade students reject the fact that anatomy education is processed with distance education and that it is continuous (2nd and 3rd questions). 'I fully understand everything about anatomy with distance education.' In his opinion, 'undecided' students in the second year made a significant difference. In the study of Thongbunma et al., students who are more curious about online education in some questions are similar to those in this study (Thongbunma et al., 2021). However, there are two groups of students who want to give anatomy lessons via distance education in the second grades and show an indecisive attitude, again in proportion to the first graders. Perhaps these students may be the group of students who do not communicate much with the class. Or there may be a community that does not approach idealistic and exhibits 'it's okay if I don't learn live' attitude.

'The fact that the Anatomy practice lessons were videos made up for my lack in the distance education process.' half of both first and second year students were satisfied with the situation, that is, the videos made up for the lack of subject. But in both classes, half of the class does not agree with this situation, that is, the lack of subject has not been eliminated. In this question, the students may not have understood the subject from the videos. This situation also may present a deficiency in them (Franchi, 2020).

In the fifth question, both first and second year students want anatomy practice lessons face-to-face at a high rate. Less number of students in first grades than in second grades do not agree with this situation. In the second year, indecisive students also show themselves to a certain extent along with those who do not agree with this situation.

A great majority of both first and second year students rejected the idea of having the anatomy course entirely by distance education. But in both classes, there are also students who want distance education completely and show an indecisive attitude.

In the seventh question, a different perspective was presented to the students. Both the first and second grades highly supported the fact that some of the anatomy practice courses were given by distance education and some of them were conducted in a laboratory environment with face-to-face education. This attitude can give a new and effective impetus to education.

'Theoretical part of the anatomy course should be done live in the classroom environment.' The vast majority of both first and second year students agreed with the opinion at a high level. However, a certain percentage of students from both classes do not want this situation. There are also undecided students. 'Anatomy contains both distance education, live classroom environment and an education model integrated with 3D software for theoretical lessons.' There is a very high rate of participation in the opinion. However, there are also students in both classes who do not agree with this view and show an indecisive attitude. It is clear from this that students are actually looking for an innovation in education (Emanuel, 2020).

Students in distance education stated that they do not look forward to home education unfortunately (question 10-12). In addition, a large majority have marked that they have experienced internet disconnection and other technical problems related to distance education. That's why distance education has come into our lives, since

covid-19 has come into our lives, improvement studies can be done on this issue. Although, distance education is rejected, it may be possible to bring its beneficial aspects into our lives (Co et al., 2022). This idea was also obtained in this study.

'Theoretical part of distance education can replace live education by keeping the lecture time longer.' Surprisingly, this view was highly rejected by both classes. But in both classes, the students with the second highest rate are the students who are 'undecided'. On the other hand, while the students who push this situation in the second grade are almost equal to the undecided students, the students who agree with this view in the first grades are few. This may also mean that second graders are tired of the theoretical course load in the classroom and can listen more easily with distance education. If there is a second situation that supports the view, there may be the possibility of recording the lesson and repeating it whenever they want. Both classes showed a highly 'undecided' attitude towards the idea of extending the course duration in order for distance education to replace live education. This is one of the most striking answers of the study (Borstorff and Lowe, 2007). As in the study by Hebebci et al., the reaction of the students to the on-line theoretical course can be interpreted as their socialization at school and their desire for this environment (Hebebci et al., 2020).

In the last two years in the literature, many studies have been done on covid-19 in this way. In all of them, the features of distance education are generally examined (Co et al., 2022; Borstorff and Lowe, 2007; Turhan and Yakut, 2020; Coman et al., 2020). In some articles, both the benefits and harms of distance education have been mentioned quite a lot. The truth is, yes, distance education is not an education model adopted especially for medical students. But distance education can also have some benefits (Mukhtar et al., 2020; Dost et al., 2020). If the visuals of some courses are processed as a separate visual course with distance education, it is clearly understood from this article that such activities are very pleasing to the students. In addition, a different innovation can be brought to medical education in the form of hybrid education modeling, which is evident from today's agenda that will come to the fore with different models in the future (Jones, 2021).

5. Conclusion

Although the distance education model was in the past, it suddenly became widespread all over the world during the covid-19 infection. In addition to its disadvantages, of course, it has brought some advantages into our lives. Even if the covid-19 disease has passed, distance education is used in natural disasters and sometimes in cases where the subjects are not reached. In addition, the implementation of hybrid education models together with distance education and the feedback obtained are very important. It is very valuable that this article contributes to the literature with the answers given by the students.

Author Contributions

The percentage of the author contributions is presented below. The author reviewed and approved the final version of the manuscript.

	E.B.
C	100
D	100
S	100
DCP	100
DAI	100
L	100
W	100
CR	100
SR	100
PM	100
FA	100

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The author declared that there is no conflict of interest.

Ethical Approval/Informed Consent

This study was carried out in compliance with the principles of the Declaration of Helsinki. This study was approved by the ethics committee of the Faculty of Health Sciences of Kafkas University (approval date: May 01, 2020 and protocol code: 2020/05).

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