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Determination of Anatomy Self-Efficiency Of 2022-2023 Fall Semester of 2nd Class Ordu University Dentistry Students Taking Distance Education

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Abstract

Objective: On 6 February 2023, a significant seismic event occurred in Kahramanmaraş, Turkey. The region was hit by strong earthquakes of high intensity. The first powerful earthquake occurred at 04:17 local time. It had a profound impact on the local population and infrastructure. The aim of this study is to investigate the anatomy self-efficacy of the students of the second semester of the Faculty of Dentistry who took a distance learning course after the earthquake in Kahramanmaraş.

Methods: A total of 102 students participated in this cross-sectional study. Students participating in the study were administered the Anatomy Self-Efficacy Scale. The independent samples t-test was used to compare two independent groups of parametric data. For categorical data, the chi-squared test was used for multiple comparisons.

Results: Mean total scale score of males is 78.73±10.64, and the subdimensions are 34.47±4.18, 21.42±3.85 and 22.83±3.78 from 1 to 3. The total score of females is 79.20±9.83, and in the sub-dimensions they are 34.58±3.73, 21.46 ± 3.39 and 23.15±4.35 respectively. For the total and sub-dimension scores, there was no statistically significant difference between the sexes.

Conclusion: In the life of an academic institution, online education has become essential. In this study, whose population was second-year students at Ordu University Dentistry, students who receive online education for basic medical sciences, which includes intensive practical training such as anatomy instruction, can achieve an intermediate level of anatomy self-efficacy. While online education is ideal for improving self-efficacy in anatomy at an intermediate level, it is not sufficient for improving anatomy at a high level.

Key Words: Anatomy, education, scale.

Ordu Üniversitesi Uzaktan Eğitim Gören 2. Sinif Diş Hekimliği Öğrencilerinin 2022-2023 Güz Dönemi Anatomi Öz Yeterliliklerinin Belirlenmesi

Özet

Amaç: 6 Şubat 2023 tarihinde Kahramanmaraş, Türkiye'de önemli bir sismik olay meydana geldi. Bölge, yüksek şiddette güçlü depremlerle sarsıldı. İlk güçlü deprem yerel saatle 04.17'de meydana geldi. Depremin yerel nüfus ve altyapı üzerinde derin bir etkisi olmuştur. Bu çalışmanın amacı Kahramanmaraş depremi sonrası uzaktan eğitim dersi alan Diş Hekimliği Fakültesi 2. dönem öğrencilerinin anatomi özyeterlik düzeylerinin araştırılmasıdır.

Yöntem: Bu kesitsel çalışmaya 102 öğrenci dahil edilmiştir. Araştırmaya katılan öğrencilere Anatomi Öz-Yeterlik Ölçeği uygulandı. Parametrik verilerin iki bağımsız grubunu karşılaştırmak için bağımsız örneklemler t-testi uygulandı. Kategorik veriler için, çoklu karşılaştırmalarda ki-kare testi kullanıldı.

Bulgular: Erkeklerin ölçek toplam puan ortalaması 78.73±10.64, alt boyutlarda ise 1'den 3'e kadar sırasıyla 34.47±4.18, 21.42±3.85 ve 22.83±3.78'dir. Kadınların ölçek toplam puan ortalaması 79.20±9.83, alt boyutlarda ise sırasıyla 34.58±3.73, 21.46±3.39 ve 23.15±4.35'dir. Toplam ve alt boyut puanları için cinsiyetler arasında istatistiksel olarak anlamlı bir fark bulunmamıştır.

Sonuç: Bir akademik kurumun yaşamında online eğitim vazgeçilmez hale gelmiştir. Evreni Ordu Üniversitesi Diş Hekimliği ikinci sınıf öğrencileri olan bu çalışmada, anatomi eğitimi gibi yoğun uygulamalı eğitim içeren temel tıp bilimleri için online eğitim alan öğrencilerin orta düzeyde anatomi öz yeterliliğine ulaşabildikleri görülmüştür**.** Online eğitim, anatomi öz yeterliliğini orta düzeyde geliştirmek için ideal olsa da, anatomiyi yüksek düzeyde geliştirmek için yeterli değildir.

Anahtar Kelimeler: Anatomi, eğitim, ölçek.

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INTRODUCTION

The anatomy course is considered the foundation of medical education in terms of forming the infrastructure of self-efficacy of health professionals in their professional life (1). Although anatomy education is based on theoretical and practical training in the laboratory environment, there has been a shift to online platforms as a result of the Covid-19 pandemic (2). Anatomy instructors have also introduced video-assisted and 3D anatomy teaching into the literature (3).

On the 6th of February 2023, the rupture of the East Anatolian Fault Zone with an earthquake of magnitude Mw=7.8 caused great destruction in the south of Turkey and the north of Syria (4). This earthquake, which occurred at a depth of 10 km, killed 57,000 people, including 7,000 in Syria and 50,000 in Turkey, according to data from 20 March 2023 (5). As a result of this natural disaster, more than 13 million people in 11 provinces in the south of Turkey were affected. On 11 February 2023, the university decided to offer distance learning for the spring semester of the 2022-2023 academic year (5,6).

Although the decision to switch to distance learning in the aftermath of the earthquake was criticised by the authorities, it has continued to be implemented in practice (7). The opening of dormitories for earthquake victims was one of the main reasons for the move to online education (7). The impact on social life in the region and on university buildings is another reason for choosing online education (8).

In the decision of the Senate of 21 February 2023, the University of Ordu has decided to switch to online education in the classes of the Faculty of Dentistry Period I-II-III, together with many other programmers (9).

Anatomy courses are given in the first 3 semesters of Ordu University Faculty of Dentistry. Anatomy of the musculoskeletal system is taught in the Anatomy I course in the first semester, Anatomy of the systems in the Anatomy II course in the second semester, and Topographical Anatomy of the head and face in the third semester (10).

The aim of this study is to investigate the self-efficacy of the students of the second semester of the Faculty of Dentistry who took a distance learning course after the earthquake in Kahramanmaraş.

METHODS

Ethical approval

The ethical approval for this study was granted by the Ethics Committee for Clinical Research at the University of Ordu with decision number 2023/173. Informed consent in writing and verbal consent has been obtained from all participants.

Sample determination

The 2nd year students of the Faculty of Dentistry at Ordu University are the population of this study. There are 102 people in the population of the study, the study was designed as a 1/1 cross-sectional study and the population of the study constitutes the sample of the study (n=102).

Exclusion criteria

1- Failure to give written and verbal consent

2- Giving different answers to the distracting questions

3- Declaring withdrawal from the study.

There were no students who were excluded from the study.

Anatomy self-efficacy scale

The Perception of Self-Efficacy Scale for Human Anatomy Lesson developed by Polat D. (2008) was used in the study (11). The reliability coefficient of this scale was determined to be Cronbach's alpha (α) 0.84. The scale consists of 26 questions of the Likert type and each question is given a score of (1-5) points. The scale range is (26-130). The scale has 5 levels, classified as very low (26-43), low (44-60), moderate (61-96), high (97-113), very high (114-130). There are 3 sub-dimensions in the scale;

Sub-dimension 1: anatomy confidence

Sub-dimension 2: anatomy practice and awareness

Sub-dimension 3: was determined as the conversion of anatomical knowledge into a life skill.

Statistical analysis

The data obtained were subjected to a normal distribution analysis with 5 parameters (standard deviation/mean, kurtosis/ skewness, histograms, Q-Q plots, Shapiro-Wilk test). Data were considered to be normally distributed with a score greater than 3. Mean±standard deviation was used for normally distributed parameters. To compare two independent groups of parametric data, the independent samples t-test was used. The categorised data were subjected to the chi-squared test for multiple comparisons (post-hoc Fischer's Exact test: minimum expected value < 5). Pearson's correlation analysis was used to correlate between subdimensions.

RESULTS

Sociodemographic findings

Of the participants, 41.1% (n=42) were male and 58.9% (n=60) were female. The mean age of the males was 20.69±0.89 and the mean age of the females was 20.68±0.72, and there was no statistically significant difference between the groups (p>0.05).

Anatomy self-efficacy scale survey findings

The mean total score for men is 78.73±10.64, with a minimum of 58 and a maximum of 102. The mean total score for women is 79.20±9.83,

with a minimum of 51 and a maximum of 101. Total scores were not statistically significantly different between males and females (p>0.05).

The mean sub-dimension scores for males were 34.47±4.18, 21.42±3.85 and 22.83±3.78 respectively. The mean sub-dimension scores of the female students were 34.58±3.73, 21.46±3.39 and 23.15±4.35, respectively. In none of the sub-dimensions was there a statistically significant difference (p>0.05) between males and females.

Of the 26 questions in the questionnaire, the highest score for both genders was obtained by the 26th question, "As my knowledge of anatomy increases, so does my self-confidence". Among the females, 32 students gave an answer to this question and 16 students always gave an answer to this question. For females, 22 students answered: "often" and 7 students answered: "always".

Sub-dimension 1 (Consequences of confidence in anatomy knowledge) findings

There are 11 questions in this sub-dimension and points can be obtained between (11-55). The average total score of this sub-dimension is 34.53±3.88, and the average score per question is 3.14. The answers to this sub-dimension are summarized in the graph (GRAPH 1) (I26) 'As my knowledge of anatomy increases, so does my self-confidence' received the highest score in this section with a mean score of 3.90±0.83. 7.8% of the participants answered this question rarely, 16.7% sometimes, 52.9% often and 22.52% always.

(I14) 'I know how to behave when I encounter a new situation in anatomy'. It was the item with the lowest score in this sub-dimension. The mean score of this item was 2.85±0.77. This question was answered by 2.9% never, 28.4% rarely, 50.0% sometimes, 17.6% often and 1.0% always.

Sub-dimension 2 (Awareness of anatomy application skills) findings

Consisting of 7 items belonging to this sub-dimension, the average total score is 21.45±3.55 and the average score per question is 3.06. The information on this sub-dimension is summarized in the graph (GRAPH 2).

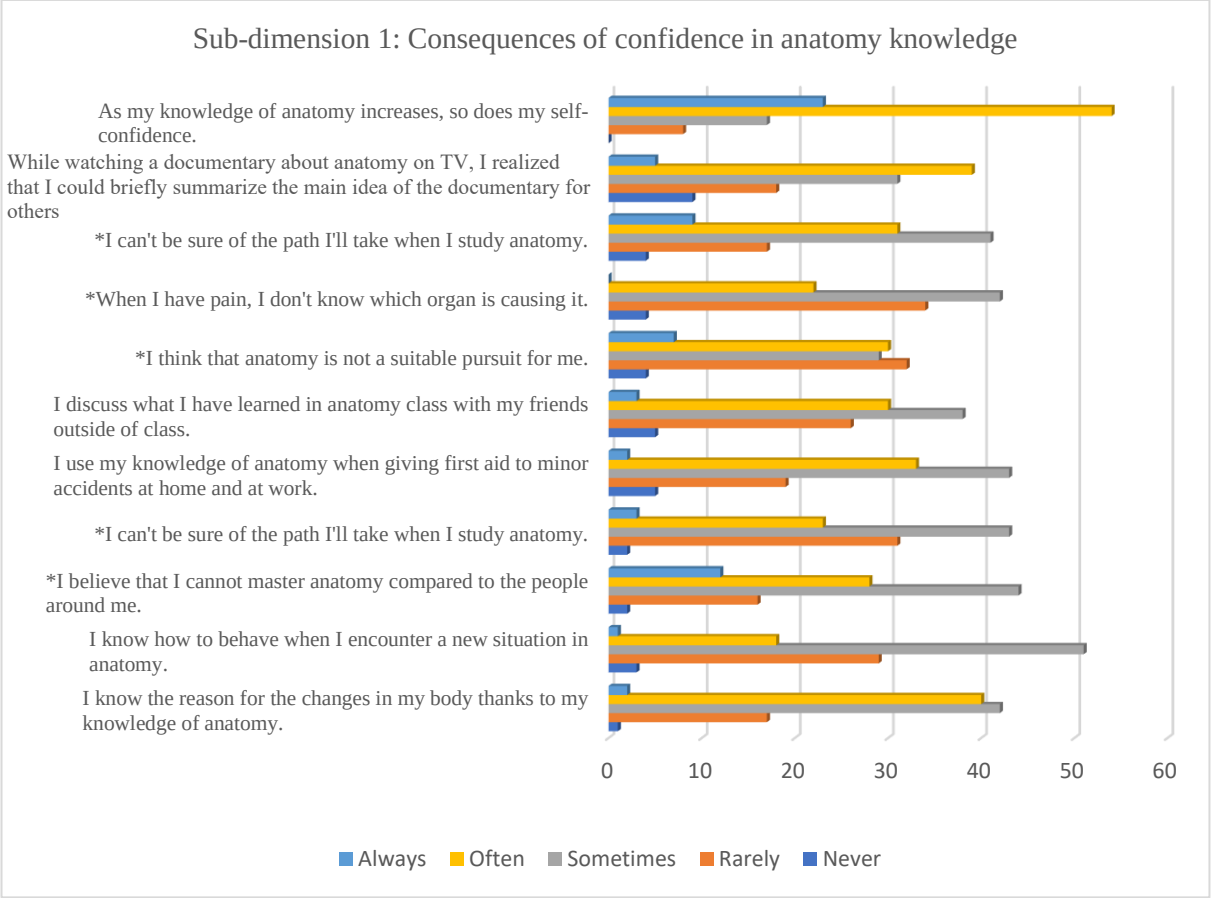
The item with the highest score in this sub-dimension is (I8) 'I think that my view of my body has changed after reading the anatomy course'. To this item, 2% of the students answered never, 13.7% rarely, 25.5% sometimes, 43.1% often, 15.7% always. The item (I19) 'I feel competent in anatomy' received the lowest score of this sub-dimension with 2.62±0.86. 11.8% of the participants never answered this question, 27.5% rarely, 47.1% sometimes, 13.7% often. None of the participants always answered this question.

Sub-dimension 3 (Transforming theoretical knowledge into life skills in anatomy) findings

The information on this sub-dimension is summarized in the corresponding graph (GRAPH 3). There are 8 items in this sub-

dimension and scores can be obtained between (8-40). The average total score for this section is 23.01±4.09 and the average score per question is 2.87. This sub-dimension had the lowest score in the scale.

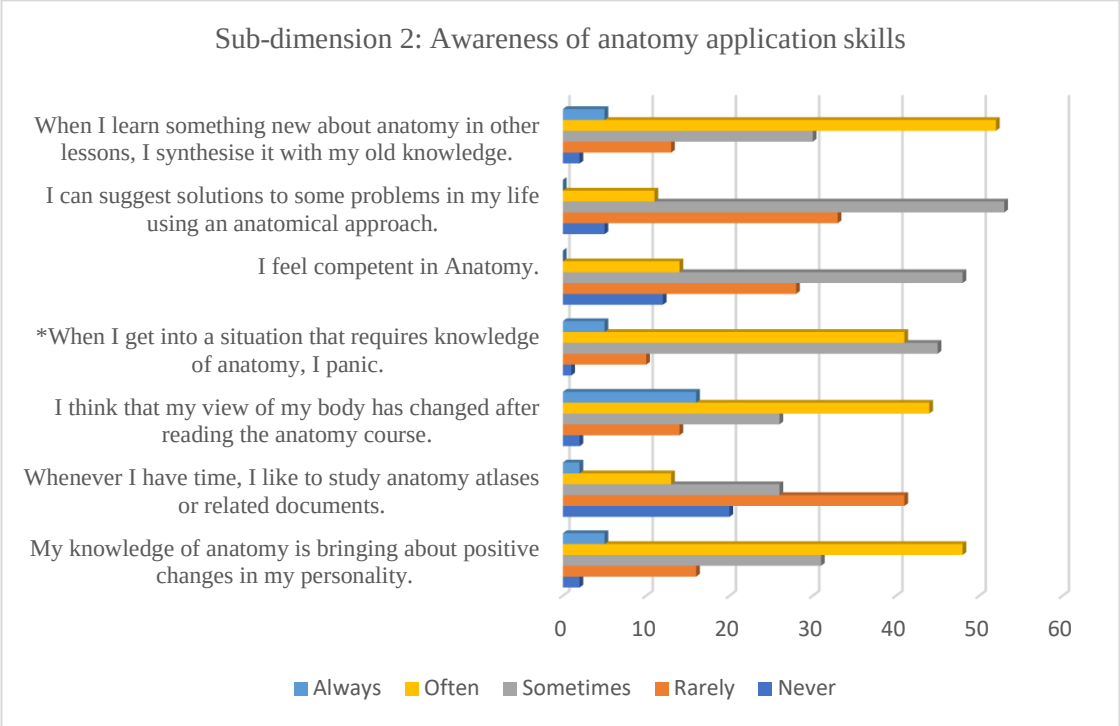
In this sub-dimension, the item (I13) 'I know the reason for the changes in my body thanks to my knowledge of anatomy' received the highest score. The mean score is 3.30±0.76. 1% of the students who answered this question never, 13.7% rarely, 41.2% sometimes, 42.2% often and 2% always.



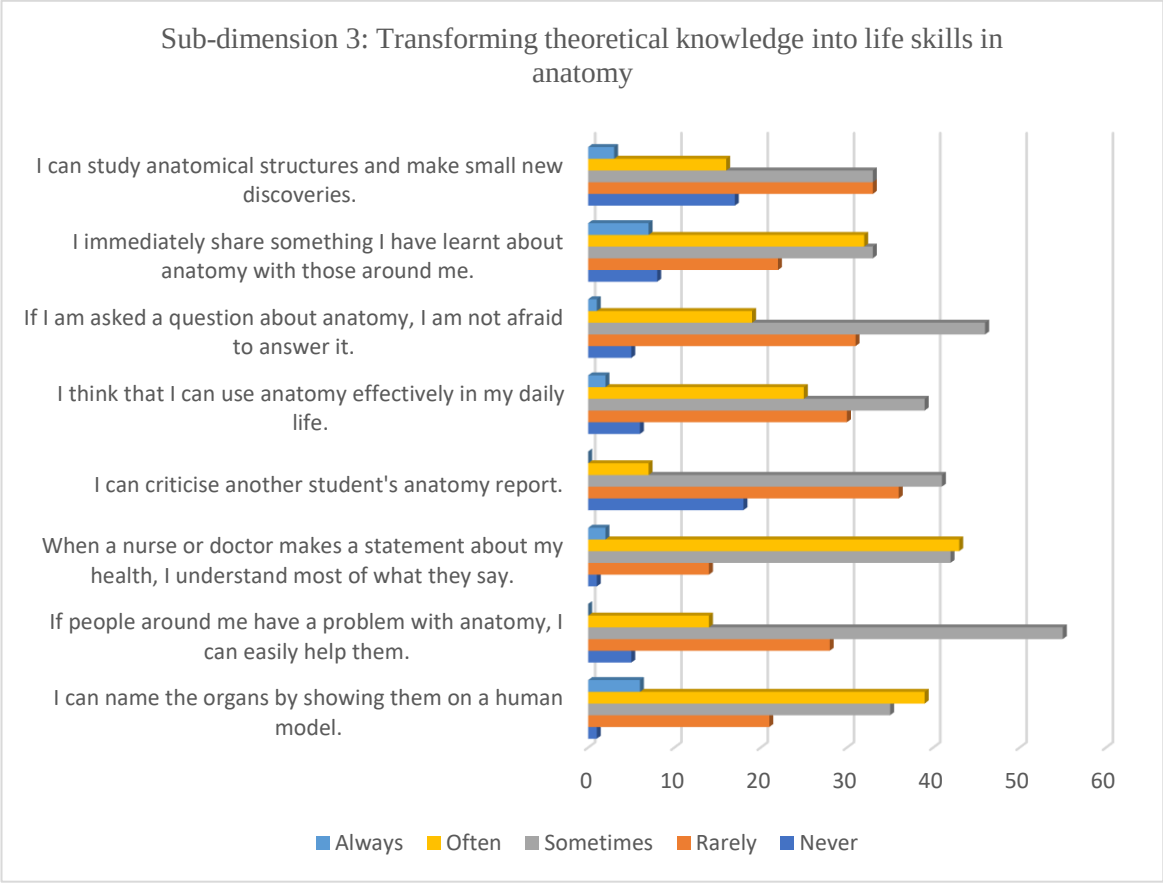
Graph 1. Responses were presented on a Likert scale for sub-dimension 1.

Correlation between sub-dimensions

Pearson correlation was performed between the parametric data, and correlation values were determined in accordance with the reference article (12). The correlation between the sub-dimensions is shown in the table (Table 1). There is a moderate positive correlation between sub-dimension 1 and sub-dimension 2 ($0.5<r<0.7$, $p<0.001$). There is a moderate positive correlation between sub-dimension 1 and sub-dimension 3 ($0.5<r<0.7$, $p<0.001$). There is a high positive correlation between sub-dimension 2 and sub-dimension 3 ($0.7<r<0.9$, $p<0.001$).



Graph 2. Responses were presented on a Likert scale for sub-dimension 2.



Graph 3. Responses were presented on a Likert scale for sub-dimension 3

Table 1. Correlation between anatomy self-efficacy sub-dimensions

		Sub-dimension 1	Sub-dimension 2	Sub-dimension 3
Sub-dimension 1				
	r	1		
	p			
Sub-dimension 2				
	r	0.643	1	
	p	<0.001		
Sub-dimension 3				
	r	0.587	0.882	1
	p	<0.001	<0.001	

Relationship between sex and anatomy self-efficacy

The relationship between sex and anatomy self-efficacy was analysed by cross-tabulation. Of the female students, 2 were classified as low, 57 as medium and 1 as high. Of the male students, 3 were classified as low, 38 as medium and 1 as high. There were no students with very high or very low proficiency in either sex. There was no statistical difference between the sexes in the frequency analysis of anatomy proficiency by sex ($p>0.05$).

DISCUSSION

In the process that began with the Covid-19 pandemic, distance learning has gradually become more popular in recent years. Particularly after the pandemic, interest in distance learning in anatomy increased. A review found that there were 182 records evaluating anatomy and distance learning (13). This review stated that 20 of the academic records were evaluated for detailed qualitative analysis. It was noted that these studies focused on student performance and student feedback (13). In our study, we found it appropriate to evaluate the portfolio to determine student competence rather than performance measures. In our study, we wanted to see how competent they described themselves, rather than student performance. While performance assessment is an instantaneous decision, self-efficacy assessment provides more continuous information.

A study conducted at the University of Genoa compared face-to-face and online anatomy teaching (14). They evaluated the study with short questionnaires and exams. In each academic term, the students took 7 exams. They found that the success rate of students who received online anatomy education was higher than that of students who received face-to-face education. While 83.5% of the students who received online education were successful, 16.5% were unsuccessful (14). Our study has shown that online anatomy training is effective for intermediate competence. The failure rate of about 1/6 of the students in the study conducted

at the University of Genoa is also consistent with the low level of anatomy knowledge in our study.

In another study in the literature, face-to-face training given just before the pandemic and online anatomy and histology training during the pandemic period were compared (15). When the success results in the study were compared, the anatomy exam average in the face-to-face period was 22.62±2.53, the anatomy+histology score average was 24.23±2.76, while the post-pandemic online education exam averages were 27.19±2.92 for anatomy and 27.27±2.87 for anatomy+histology. When the distribution of the scores of the students was examined, it was seen that the scores in the online anatomy group met at the middle-high level in this study. These data are also compatible with the results of our study.

In one of the studies conducted in this period, the most ideal anatomy method was sought. In these studies, on the muscular system (3) and the skeletal system (16), 3D (Three-dimensional), video-assisted online education and classical laboratory anatomy education were compared. In this study, unlike other studies, the assessment exam was administered face-to-face to all participants. According to the results of these studies, the success level of anatomy education specific to the muscular system was determined as conservative education>3D anatomy education>online Anatomy education>control group (no additional education).

In a cross-sectional study aimed at defining the dynamic links between anatomy and 4th year clinical practice courses for physiotherapy students through students' perceptions, it was found that without repeating the anatomy course, students who passed the course had higher scores. The study also found that students who had passed the course and students who had experience of working as a health professional had higher scores (17). We did not find anything similar when we looked at this.

We think that one of the most fundamental differences in the results of online education in the literature is the method of applying the exam. While success is higher in online exams after online education, we determine that the success grade decreases in face-to-face exams after

CONCLUSION

Online education has become an indispensable part of the life of an academic institution. Students who receive online education for basic medical sciences, which includes intensive practical training such as anatomy education, can achieve intermediate-level anatomy self-efficacy in this study, whose population was second-year students at Ordu University Dentistry. However, online education does not seem to be sufficient for a high level of anatomy self-efficacy.

LIMITATIONS

The limiting factor in this study was the inability to conduct face-to-face interviews with students to corroborate the findings.

Ethical Approval: The ethical approval for this study was granted by the Ethics Committee for Clinical Research at the University of Ordu with decision number 2023/173. Informed consent in writing and verbal consent has been obtained from all participants.

Peer-review: Externally peer-reviewed

Author Contributions: Hypothesis: HY, Design: HY, DB, SY, Data collection: HY, MD, AD Analysis: HY, DB, SY, Writing: HY, DB, AD, Editing: HY, MD, AD

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