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AN INVESTIGATION OF ACADEMICIANS AND STUDENTS' PERCEPTION AND ATTITUDES FOR DISTANCE PHYSIOTHERAPY AND REHABILITATION EDUCATION IN COVID-19 PANDEMIC

ORIGINAL ARTICLE

ABSTRACT

Purpose: In the COVID-19 pandemic, perceptions, and attitudes of academicians and students towards distance education (DE) are essential for the DE's continuity. This study aimed to determine the perceptions and attitudes of academicians and students towards distant physiotherapy and rehabilitation education in the COVID-19 pandemic.

Methods: Study information was given to 22 academicians (14 females and 8 males) assigned in DE. Academicians were filled with Perceptions Scale Questionnaire. The Web-Based Instruction Attitude Scale online survey link was sent to 620 undergraduate students. The data of 381 students (271 females and 110 males) who completed the questionnaire were analyzed.

Results: The Distance Education Perceptions Scale total score of the academicians was 60.76±11.29. Increasing age (p=0.003) and length of teaching (years) (p=0.012) had a negative effect on the total score. The Web-Based Instruction Attitude Scale total score of the students was 72.11±20.29. Increasing age (p=0.006) and grade (p=0.041) has a positive influence on the total score. There was no significant gender difference in both academicians' perceptions and attitudes (p=0.973) and students (p=0.973).

Conclusion: Although DE is seen as an alternative solution in ongoing educational activities during the pandemic, academicians and students thought that DE could not be equivalent to face-to-face education in terms of quality and learning outcomes. However, since it would become inevitable to use DE in many educational fields in the information age, it could create methods that would make DE a usable model in education.

Key Words: Attitude; COVID-19; Distance Education; Health Student; Physical Therapy.

COVID-19 SALGININDA ÖĞRETİM ELEMANI VE ÖĞRENCİLERİN UZAKTAN FİZYOTERAPİ VE REHABİLİTASYON EĞİTİMİNE YÖNELİK ALGI VE TUTUMLARININ İNCELENMESİ

ARAŞTIRMA MAKALESİ

ÖZ

Amaç: COVID-19 salgınında, akademisyenlerin ve öğrencilerin uzaktan eğitime (UE) yönelik algı ve tutumları uzaktan eğitimin devamlılığı açısından önemlidir. Bu çalışmada, akademisyenlerin ve öğrencilerin COVID-19 pandemisinde uzaktan fizyoterapi ve rehabilitasyon eğitimine yönelik algı ve tutumlarının belirlenmesi amaçlandı.

Yöntem: UE'de görevlendirilen 22 akademisyene (14 kadın ve 8 erkek) çalışma hakkında bilgi verildi. Akademisyenler Uzaktan Eğitim Algı Ölçeği anketini doldurdu. Web Tabanlı Öğretim Tutum Ölçeği çevrimiçi anket linki 620 lisans öğrencisine gönderildi. Anketi dolduran 381 öğrencinin (271 kız ve 110 erkek) verileri analiz edildi.

Sonuçlar: Akademisyenlerin Uzaktan Eğitim Algıları Ölçeği toplam puanı 60,76±11,29'du. Artan yaş (p=0.003) ve öğretim süresi (yıl) (p=0,012) toplam puan üzerinde olumsuz etkiye sahipti. Öğrencilerin Web Tabanlı Öğretim Tutum Ölçeği toplam puanı 72,11±20,29'du. Artan yaş (p=0,006) ve sınıf (p=0.041) toplam puan üzerinde olumlu etkiye sahipti. Hem akademisyenlerin (p=0,973) hem de öğrencilerin (p=0,973) algı ve tutumlarında cinsiyete göre anlamlı farklılık yoktu.

Tartışma: UE, pandemi sürecinde devam eden eğitim faaliyetleri açısından alternatif bir çözüm olarak görülse de akademisyenler ve öğrenciler UE'nin eğitim kalitesi ve öğrenme çıktıları açısından yüz yüze eğitime eşdeğer olamayacağını düşünmektedir. Bununla birlikte, bilgi çağında eğitimin birçok alanında UE'nin kullanılması kaçınılmaz hale geleceği için, UE'yi eğitimde kullanılabilir bir modele dönüştürecek yöntemler oluşturmaya odaklanılabilir.

Anahtar Kelimeler: Tutum; COVID-19; Uzaktan Eğitim; Sağlık Öğrencisi; Fizik Tedavi.

INTRODUCTION

Novel coronavirus disease (COVID-19) is a pandemic affecting all global industries, including education (1). Due to the increasing number of cases of COVID-19 infections, the WHO declared a pandemic on March 11, 2020 (2), education in schools and educational institutions was temporarily stopped in 150 countries on March 25, 2020, and affecting more than 80% of the world's student population (3). Distance education (DE) is a concept that does not require students and instructors to be physically in the same environment and gives individuals the freedom to access information regardless of the time and place in education and training (4). During the COVID-19 pandemic period, many institutions and instructors tried to continue without disruption through DE instead of cancelling their lectures (5). During this process, education professionals had to adapt their teaching methods and other professional work to DE in a minimal time, thus providing training and consultancy regardless of their self-efficacy or DE attitudes (6). In addition, additional stress factors such as their children staying at home and long course hours made the process difficult for academics working in all educational institutions due to the transition to DE (7,8).

Students who choose DE for university education have a positive attitude towards DE (9,10) and are more interested in traditional classroom learning (11). However, the attitudes of students who started education with traditional face-to-face training and had to switch to the DE program due to COVID-19 are unclear. Especially in departments that include theoretical and practical courses such as physiotherapy and rehabilitation, training with active participation (observation, palpation, examination, manipulative treatment, exercise techniques) is not efficient enough by DE, which might affect students' attitudes towards DE. In terms of academicians, insufficient technical support, lack of DE materials (such as videos of practical lectures), and lack of knowledge in the use of e-learning platforms may affect their perception of DE. This study aimed to determine the perceptions and attitudes of academicians and students towards physiotherapy and rehabilitation DE in the COVID-19 pandemic.

METHODS

This study was conducted at the School of Physical Therapy and Rehabilitation between May and June 2020. Study information was given to 22 academicians be assigned in DE, and questionnaires were filled through face-to-face interviews. The online survey link was sent to through students' class WhatsApp groups to all of the 620 undergraduate students in the 2019-2020 academic years. The study's ethical approval was obtained from the Pamukkale University Non-Interventional Clinical Researches Ethics Committee (Approval Date: 09.06.2020 and Approval Number: 2020-11). The authors have received permission from the Republic of Turkey Ministry of Health. Volunteers who approved the written informed consent form detailed at the beginning of the online survey were included in the study. The time required to answer all items of the scales was 5-10 minutes.

Assessment

Demographic data of academicians (age, gender, teaching duration, number of lectures given by DE, academic degree, department, previously participating in the DE program as an instructor or student) and students (age, gender, department, previously participating in the DE program as an instructor or student) were recorded.

Distance Education Perceptions Scale was developed by Gök (2011) to evaluate the perceptions of DE's academicians. In the Turkish reliability study of the scale, Cronbach alpha reliability coefficient was 0.91 (12). The scale mainly consists of 21-items and is a 5-point Likert type (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). It consists of three factors: perception of basic view (10 items, score range 10-50), access to resources (6 items, score range 6-30), and education and training planning (5 items, score range 5-25). The "Perception of Basic View" assesses the conceptual dimension of DE, and academicians' thoughts on DE. The "Access to Resources" evaluates students and academicians' access to the lecture and lecture resources as well as support for DE. The "Education and Training Planning" includes the division of labour and working environments of the people involved and expected from them. The total score ranges from 21-105, and a higher score

indicates positive perception. The Turkish version of the questionnaire was used, and permission was obtained from the author.

Web-Based Instruction Attitude Scale was developed by Erdoğan et al. (2007). It is a scale to measure students' attitudes towards web-based instruction. In the Turkish reliability study of the scale, Cronbach alfa internal consistency coefficient was 0.92 (13). The scale mainly consists of 26-items and is a 5-point Likert type (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). It consists of two factors: efficiency of web-based instruction (17 items, score range 17-85), and to resist web-based instruction (9 items, score range 9-45). The "Efficiency of Web-Based Instruction" focuses on the "educational and training effectiveness" of web-based education. The "To Resist Web-Based Instruction" is related to web-based education's disadvantages and reflects negative opinions about it. Therefore, these nine items were reversed scored. The total score ranges from 26-130, and a higher score indicates a positive attitude. The Turkish version of the questionnaire was used, and permission was obtained from the author.

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences software version 21 (IBM Corp., Armonk, NY, USA). Continuous variables were given as mean±standard deviation, and categorical variables were presented as frequencies and percentages. The Kolmogorov-Smirnov test was used to determine the distribution of the sample. Only the efficiency of web-based instruction factor of Web-Based Instruction Attitude Scale was distributed normally. Student t-test for parametric test assumption and Mann-Whitney U test for non-parametric test assumptions were used to determine the gender difference. Linear Regression Analysis was used to determine the effect of age, length of teaching, and grade on scale scores. A p-value <0.05 was considered statistically significant.

RESULTS

A total of twenty-two academicians (fourteen females and eight males) with a mean age of 42.36±8.62 (range=28-61) years participated in the study. Only five (27.70%) of the academicians had a previous experience in the DE program as instructors or students (Table 1). The academic degree was as follows: seven professors (31.8%), six associate professors (27.3%), three assistant professors (13.60%), and six research assistants (27.30%). The departments that academicians were affiliated to were as follows: eight from orthopedic rehabilitation (36.4%), eight from neurological rehabilitation (36.4%) and six form physical therapy and rehabilitation (27.3%). The mean number of lectures given by academicians through DE was 5.38±3.57 (range=2-16).

The online survey was sent to 620 undergraduate students. The data of 381 students (271 females and 110 males) who completed the questionnaire were analyzed. The mean age of the students was

Table 1: Descriptive Characteristics of Academicians and Students.

Variables	Academicians (n=22)		Students (n=381)	
	Mean±SD	Min-Max	Mean±SD	Min-Max
Age (years)	42.36±8.62	28-61	21.91±2.48	18-35
Teaching Duration (years)	14.82±9.70	1-25	-	-
	n	%	n	%
Gender				
Female	14	63.6	271	71.1
Male	8	36.4	110	28.9
Previous Participation in the DE Program as an Instructor or Student				
Yes	5	27.7	160	42.0
No	17	77.3	221	58.0

DE: Distance education.

Table 2: Academicians Perceptions and Attitudes towards Distance Education and Comparison by Gender.

Variables	Academicians (n=22)		Gender		p
			Female (n=14)	Male (n=8)	
Distance Education Perceptions Scale	**Mean±SD**	**Min-Max**	**Mean±SD**	**Mean±SD**	
Perception of Basic View	24.52±6.17	13-37	24.50±6.25	25.00±6.14	0.868
Access to Resources	18.71±4.09	6-25	18.00±4.47	19.38±3.50	0.616
Education and Training Planning	17.52±3.97	9-23	18.50±3.61	15.88±3.98	0.127
Total Score of Academicians	60.76±11.29	42-82	61.00±11.00	60.25±11.78	0.973

Mann-Whitney U test.

21.91±2.48 (range=18-35) years, and 160 (42%) of the students had previously participated in a DE program (Table 1). Distribution of students by grades was as follows: 1st year n=71 (18.6%), 2nd year n=90 (23.6%), 3rd year n=125 (32.8%), and 4th year n=95 (24.9%).

The Distance Education Perceptions Scale total score was 60.76±11.29 (range=42-82), Perception of Basic View was 24.52±6.17 (range=13-37), Access to Resources was 18.71±4.09 (range=6-25) and Education, and Training Planning was 17.52±3.97 (range=9-23). According to the results of both total score and factor scores, the academicians' DE perception score is medium-level. There is no significant gender difference in total and factor scores (p>0.05) (Table 2). Increasing age had a negative influence on the Perception of Basic View (p<0.001) and the total score (p=0.003). Access to Resources and Education and Training Planning are not affected by ageing (p>0.05). Length of teaching (year) has a negative effect on the Perception of Basic View (p=0.009), Education and Training Planning (p=0.034) and the total score (p=0.012) but not on Access to Resources (p=0.413) (Table 3).

The Web-Based Instruction Attitude Scale total score was 72.11±20.29 (range=26-130), Efficiency of Web-Based Instruction was 49.01±16.16 (range=17-85) and To Resist Web-Based Instruction was 23.10±8.09 (range=9-45). There was no significant gender difference in total and factor scores (p>0.05) (Table 4). Increasing age and grade has positive influence on Efficiency of Web-Based Instruction (age p=0.010, grade p=0.025) and total score (age p=0.006, grade p=0.041) whereas not on To Resist Web-Based Instruction (age p=0.071, grade p=0.517) (Table 5).

DISCUSSION

The attitude and perception of the academicians and students to DE are vital for its success. This study showed that the academicians' perceptions of DE are at a moderate level, increase in the age and duration of teaching affects DE Perception adversely. Web-Based Instruction Attitude of the students was at a moderate level, and it is positively affected by age and grade. There is no significant

Table 3: Comparison of Academicians' Perceptions and Attitudes towards Distance Education by Age, Length of Teaching (years).

Variables	Age (years)				Length of Teaching (years)			
	Standardized Coefficients Beta	p	95% CI for Beta		Standardized Coefficients Beta	p	95% CI for Beta	
			Lower bound	Upper bound			Lower bound	Upper bound
Distance Education Perceptions Scale (academicians n=22)								
Perception of Basic View	-0.729	**<0.001***	-0.738	-0.289	-0.542	**0.009***	-0.584	-0.094
Access to Resources	-0.302	0.172	-0.357	0.068	-0.184	0.413	-0.272	0.117
Education and Training Planning	-0.259	0.245	-0.319	0.086	-0.453	**0.034***	-0.347	-0.015
Total Score of Academicians	-0.605	**0.003***	-1.249	-0.299	-0.527	**0.012***	-1.048	-0.148

*p<0.05. Linear Regression Analysis.

Table 4: Students' Perceptions and Attitudes towards Distance Education and Comparison by Gender.

Variables	Students (n=381)		Female (n=271)	Male (n=110)	p
Web-Based Instruction Attitude Scale	**Mean±SD**	**Min-Max**	**Mean±SD**	**Mean±SD**	
Efficiency of Web-Based Instruction	49.01±16.16	17-85	49.31±16.26	48.29±15.99	0.575[δ]
To Resist Web-Based Instruction	23.10±8.09	9-45	22.94±8.05	23.50±8.19	0.647[#]
Total Score of Students	72.11±20.29	26-130	72.25±21.02	71.79±18.46	0.973[#]

[δ]Student's t-test. [#]Mann-Whitney U test.

gender difference in the perceptions and attitudes of both academicians and students.

The concept of DE is not new in the world of education, but its use has become quite common in the COVID-19 pandemic. Advances in DE and learning technology have emerged rapidly in recent years and have created an excellent potential for academics to appeal to student masses at the national and international levels' (14). However, in the DE academician is an instructor and a consultant, assessor, researcher, process facilitator, designer, technologist, and manager (15). Considering the item-based distributions in our study, academicians made more effort to prepare and conduct physical therapy and rehabilitation DE (80.9%) and stated that the administrators expected high performance from the instructors (52.3%). They also emphasized that the learning outcomes of DE were not equivalent to face-to-face education (71.40%) and that adequate technical support was provided to lecturers to solve technical problems they encounter in DE (47.70%). Standard compulsory courses at our university were already taking place through DE. In this sense, the existing infrastructure was developed in a short time and made available in all courses, and technical problems were resolved in a short time. In this way, education continued at the university without interruption. However, the reasons such as the lack of practical and applied course materials (videos/photos) in physical therapy and rehabilitation DE, the academics spend more effort to prepare course content. The administrators' high-performance expectations may have affected the perception of DE of the academicians. Moreover, we thought that age and indirectly, the length of teaching on DE perception are due to age-related differences in technology use and frequency of use.

The COVID-19 pandemic has created significant challenges for the worldwide higher education community. The requirement that previously face-to-face lessons be taught online has caused unexpected problems for students (16). Today's students are assumed to be digitally literate and could quickly adapt to the devices used in online education, but not all academic staff and students may have sufficient technical knowledge. DE lessons' disadvantages included feeling inhibited, not having visual cues, lacking support, periods of awkward silence, and interaction without a face-to-face instructor (17). It is difficult for instructors to interact with students due to attention span regularly, multitasking while participating in sessions, low audio/video quality, and Internet connection problems. Therefore, students' perception of DE may be negatively affected (18,19). However, because of the sudden closure of universities, students had no choice but to attend DE.

Table 5: Comparison of the Perceptions and Attitudes of Students towards Distance Education by Age and Grade.

Web-Based Instruction Attitude Scale	Age				Grade			
	Standardized Coefficients Beta	p	95% CI for Beta		Standardized Coefficients Beta	p	95% CI for Beta	
			Lower bound	Upper bound			Lower bound	Upper bound
Efficiency of Web-Based Instruction	0.131	**0.010***	0.202	1.508	0.114	**0.025***	0.218	3.304
To Resist Web-Based Instruction	0.093	**0.071***	-0.026	0.631	0.033	0.517	-0.520	1.033
Total Score of Students	0.141	**0.006***	0.339	1.976	0.105	**0.041***	0.078	3.957

*p<0.05. Linear Regression Analysis.

Similarly, more than half of our students reported that DE was an alternative solution to the education problem (56.20%) in the period of COVID-19. However, they did not feel that they have belonged to the university. They were enrolled in (50.40%), and that DE was not as effective as face-to-face education (58.80%). They also stated that most of the technical problems that arise made them nervus (75%). With the rapid spread of COVID-19 around the world, the sudden closure of universities and the unknown how the process would continue may have affected students' attitudes towards DE. Although students' continuous access to course materials and communication with academicians through our university's online education platform has positively affected their DE attitudes, the opinion that online physical therapy and rehabilitation training is not as practical as face-to-face training may have caused students' attitudes to be moderate. Increasing age and grade has a positive influence on Web-Based Instructional Attitude. It might be because as the grade increases, the face-to-face education experiences of the students increase, and their ability to communicate with academics increased, and they had more knowledge about the lecture process.

Collecting data from a single university is the limitation of our study. However, a general inference about all institutions' perceptions and attitudes providing physical therapy and rehabilitation education towards DE may lead to misinterpretations due to the technical infrastructure of universities in Turkey and the differences in student and academician profiles.

In conclusion, academicians and students share a common view on physical therapy and rehabilitation DE. They mostly thought that DE could not be equivalent to face-to-face education regarding the quality of education and learning outcomes. Nevertheless, it would become inevitable to use DE in many educational fields in the information age. Thus, future studies may focus on creating methods that will enable DE to be a model which could be preferred by academics and students and their adoption by users.

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Conflict of Interest: The authors declare no conflict of interest.

Ethical Approval: The ethical approval of the study was obtained from the Pamukkale University Non-Interventional Clinical Researches Ethics Committee (Approval Date: 09.06.2020 and Approval Number: 2020-11).

Informed Consent: A written informed consent form was obtained from all participants.

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