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THE EFFECTS OF DIFFERENT EDUCATION MODELS ON THE PHYSICAL ACTIVITY AND HEALTH PROFILE OF HEALTHCARE STUDENTS IN TURKISH UNIVERSITY

ORIGINAL ARTICLE

ABSTRACT

Purpose: Hybrid and distance educational models can lead to different levels of physical activity among students. The aim of our study is to compare the effects of different education models on physical activity and health profile of university healthcare students.

Methods: Six hundred healthcare students at Turkish universities between the ages of 17-25 were included in our study. Participants were divided into 2 groups as hybrid (n = 300, 246 females, 54 males) and distance (n = 300, 258 females, 42 males) according to the education model they received at the university. Measurements were applied online via Google Forms. The Physical Activity (PA) of the participants were assessed with Physical Activity Questionnaire-Short Form (IPAQ-SF) and the health profiles of the participants were assessed with The Nottingham Health Profile (NHP) inventory.

Results: The students in the hybrid education model had significantly higher physical activity level (p=0.001) and a better health profile (p=0.001) compared to the students who were in distance education model.

Conclusions: Students with hybrid education model are more physically active and have a better health profile than students with distance education model because they go to university more than students with distance education model.

Key Words: Educational Models, Health Status, Health Surveys, Instructional Models, Physical Activity

TÜRK ÜNİVERSİTELERİNDE FARKLI EĞİTİM MODELLERİNİN SAĞLIK ÖĞRENCİLERİNİN FİZİKSEL AKTİVİTE DÜZEYLERİ VE SAĞLIK PROFİLLERİ ÜZERİNE ETKİLERİ

ARAŞTIRMA MAKALESİ

ÖZ

Amaç: Hibrit ve uzaktan eğitim modelleri, öğrencilerde farklı fiziksel aktivite seviyelerine yol açabilir. Çalışmamızın amacı üniversitelerde sağlık eğitimi alan öğrencilerde, farklı eğitim modellerinin fiziksel aktivite ve sağlık profili üzerindeki etkilerini karşılaştırmaktır.

Yöntemler: Çalışmamıza 17-25 yaş arası, Türkiye üniversitelerinde eğitim gören altı yüz sağlık öğrencisi dahil edildi. Katılımcılar üniversitede aldıkları eğitim modeline göre hibrit (n = 300, 246 kız, 54 erkek) ve uzaktan (n = 300, 258 kız, 42 erkek) olmak üzere 2 gruba ayrıldı. Ölçümler Google Formlar aracılığıyla çevrimiçi olarak uygulandı. Katılımcıların Fiziksel Aktiviteleri (PA) Fiziksel Aktivite Anketi-Kısa Form (IPAQ-SF) ile değerlendirildi ve katılımcıların sağlık profilleri Nottingham Health Profile (NHP) envanteri ile değerlendirildi.

Sonuçlar: Hibrit eğitim modelindeki öğrenciler, uzaktan eğitim modelindeki öğrencilere göre anlamlı derecede daha yüksek fiziksel aktivite düzeyine (p=0,001) ve daha iyi bir sağlık profiline (p=0,001) sahipti.

Tartışma: Hibrit eğitim modeli uygulanan öğrenciler, uzaktan eğitim modeli uygulanan öğrencilere göre üniversiteye daha fazla gittikleri için uzaktan eğitim modeli uygulanan öğrencilere göre fiziksel olarak daha aktiftirler ve daha iyi sağlık profiline sahiptirler.

Anahtar Kelimeler: Eğitim Modelleri, Sağlık Durumu, Sağlık Anketleri, Öğretim Modelleri, Fiziksel Aktivite

INTRODUCTION

With the initiation of the pandemic process, differences have emerged into our everyday routine lives as for instance, social distance rules, masks, the new on the number of patients in the intensive care units or intubated cases, 14-day rule, carantinas and so on. The concepts that we were not familiar with before the pandemic have taken their place in our lives (1). Many workplaces were closed due to the pandemic and many people started working from home. Although we cannot fully return to our old way of life with the normalization process, there have been some changes in our lives. The Corona virus disease 19 (Covid-19) pandemic has brought about some changes not only in business life but also in education (2). While some universities took a break from education for a very short time, some universities with enough technological infrastructure support continued distance education without a break (3).

Distance education is the organization and performance of teaching-learning activities without the need for teachers and students to be physically in the same closed area (4). Multimedia presentation systems such as electronic mail, computerized conferencing, and internet are used in distance education. Distance education, which has a history dating back to the 1800s, first started with correspondence education in the 1840s (4). It was unpredictable that the situation would be so difficult on the days when the pandemic started and the process would take this long. With the number of cases not decreasing, many universities developed their technological infrastructure support and started ready for the next period (5). Hybrid education model is the mixture of distance education applications and face-to-face education applications. The purpose of this model is to increase the quality of education by supporting distance education with a face-to-face education model (6). Hybrid learning is considered as a method that combines the advantages of both methods instead of fully face-to-face education or completely technology-oriented (distance learning, online learning, etc.) education / training systems (7).

Another change in our lives with the pandemic process is physical inactivity. During the pandemic

period, staying indoors led to a decrease in physical activity (8). It is known that physical inactivity and uncontrolled stress have negative effects on the quality of life by affecting physical and mental health and are among the most important risk factors for chronic disease morbidity, especially cardiovascular problems, obesity and diabetes. However, it is known that people who are obese and have a chronic disease have a higher mortality risk from COVID-19. Therefore, for the prevention and control of chronic diseases, it is a necessity to be prepared for situations that may pose a threat to public health today and in the future (9–11). It is important to investigate the lifestyle changes and their effects that occur during these processes in order to take appropriate measures to effectively cope with the negative situations that affect community life such as pandemics and to reduce the risk of secondary negativity (12).

In the face of the COVID-19 pandemic, public health recommendations and government measures have required restrictions on free movement of people, such as more homestays, social isolation, and quarantine. In some countries, bans have been imposed that limit the duration of participating in social activities or completely restrict social activities (13). University students also experience changes in social life and physical activity with distance education. Especially depression, anxiety disorder and increased stress levels can be seen in individuals in the pandemic environment or social isolation conditions. This situation can lead to negative changes in the quality of life of the individual. (14,15).

Previous studies examining the impact of the COVID-19 pandemic on public health in Turkey have focused on the psychological impact of the epidemic rather than its impact on lifestyle changes. This study aimed to evaluate the effects of the hybrid education model and distance education model on the physical activity levels and health profiles of university students during the COVID-19 pandemic process. In this context, the hypothesis of our study is that students' physical activity levels and quality of life are affected by different educational models.

MATERIAL AND METHOD

Participants

The study permit was obtained from KTO Karatay University Faculty of Medicine Drug and Non-Medical Device Research Ethics Committee with 2021/026 decision number.

Healthcare students between the ages of 17-25 who are studying at university in Turkey were included in our study. The study's sample was determined by G*Power (Version 3.0.10; Franz Foul, Universitat Kiel, Germany). Post hoc power of this study was determined by G*Power and it calculated %54.16 with a $\alpha=0.05$ type I error and 0.143 effect size. All of the stages within this study were in compliance with the declaration of Helsinki. Written informed consent was obtained from all participants. The results for a total of 14 participants were not analyzed as 11 participants' IPAQ-SF data were missing, while 3 participants' Nottingham Health Profile data were missing. Participants were divided into 2 groups as hybrid education (n = 300, 246 females, 54 males) and distance education (n = 300, 258 females, 42 males) according to the education model they received at the university.

The inclusion criteria of the study were determined as being a university student, not having any health problems that prevent them from doing physical activity, and going to school at least two days a week for those taking lessons with the hybrid education model. Being diagnosed with COVID-19 or being quarantined, doing sports as an amateur or professional were determined as the exclusion criteria of the study.

Procedure:

Measurements were applied online via Google Forms, as it both eliminates the risk of infection due to the COVID-19 pandemic and allows the subjects to answer the questions in a shorter time and at the most convenient time for them. Informed consent form was presented to the individuals participating in the study on a voluntary basis and the participants were required to answer all questions. Individuals to be included in the hybrid education group were required to confirm that they went to school at least two days a week. On average, 5 minutes was sufficient to answer the questionnaires.

Data about the demographic information and ed-

ucation models of the individuals who participated in our study were collected.

In order to evaluate the PA of the participants, the International Physical Activity Questionnaire Short Form (IPAQ-SF), which was developed by Craig et al (16) and whose Turkish validity and reliability was performed by Sađlam et al., was used (17). The form consists of seven questions that provide information about the number of days when the participant did vigorous, moderate activity and walking in the last seven days, and the time allocated to the activities on these days and the sedentary time. Metabolic Equivalent of Task (MET) calculations of the participants were calculated as follows:

Vigorous Activity: Number of Days X Minutes per day X 8

Moderate Activity: Number of Days X Minutes per day X 4

Walking: Number of Days X Minutes per day X 3.3

Total PA: Vigorous Activity + Moderate Activity + Walking

The Nottingham Health Profile (NHP) inventory, which was developed by Hunt et al., and whose validity and reliability in Turkish was made by Kűçűk-deveci et al., was used to collect data on the health profiles of the participants. NHP is a questionnaire consisting of 28 questions that examines energy, pain, emotional reactions, sleep, social isolation and physical activity sub-parameters. Participants answer the questions as yes or no. Each section is evaluated out of 100 points. While "0" indicates good health, "100" indicates bad health (18,19).

Statistical Analysis:

SPSS 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) package program was used to analyze the data. Kolmogorov-Smirnov test, Shapiro-Wilk test and histogram method were used to test the conformity of the data to normal distribution. The difference between the data conforming to the normal distribution was evaluated with the t-test, and those that did not fit the normal distribution were evaluated with the Mann Whitney U test. All statistical analyzes were evaluated at the statistical significance level of $p < 0.05$. The Z / \sqrt{N} formula is used to calculate the effect size (r).

RESULTS

Demographic Data

Participants' ages and Body Mass Index (BMI) are given in Table 1. There was no statistically significant difference between the groups in terms of age and BMI values. One hundred and sixty-one (54%) of the participants in the hybrid education group were

bachelor degree students, 139 (46%) were associate degree students, 121 (40%) of the participants in the distance education group were bachelor degree students and 179 (69%) were associate degree students. In the hybrid education group, 246 (82%) were female, 54 (18%) were male, and in the distance education group 258 (86%) were female and 42 (14%) were male.

Table 1. Demographic Information

	Hybrid Education Group (n = 300)		Distance Education Group (n = 300)		p
	Mean	SD	Mean	SD	
Age (Year)	20.54	1.76	20.27	2.11	0.090
BMI (kg/m ²)	22.51	3.75	21.97	3.84	0.080

BMI: Body Mass Index, SD: Standard Deviation, n: Number of participants, Independent-Samples t test.

Table 2. Comparison of Physical Activity in Hybrid and Distance Education Groups

		Hybrid Education Group (n = 300, n _m = 54, n _f = 246)			Distance Education Group (n = 300, n _m = 42, n _f = 258)			Z Value	p Value	Effect Size
		Median	1.Quarter (%25)	3.Quarter (%75)	Median	1.Quarter (%25)	3.Quarter (%75)			
Vigorous Activity days	Male	1.00	0.00	2.00	2.00	0.00	3.00	1.14	0.254	0.116
	Female	0.00	0.00	2.00	0.00	0.00	2.00	0.17	0.868	0.007
	Total	1.00	0.00	2.00	0.50	0.00	2.00	0.05	0.960	0.002
Vigorous Activity duration	Male	42.50	0.00	60.00	22.50	0.00	40.00	1.39	0.166	0.141
	Female	0.00	0.00	30.00	0.00	0.00	30.00	1.39	0.164	0.061
	Total	12.50	0.00	45.00	0.00	0.00	30.00	2.10	0.036*	0.085
Vigorous Activity MET	Male	420.00	0.00	1080.00	240.00	0.00	960.00	0.46	0.644	0.046
	Female	0.00	0.00	510.00	0.00	0.00	480.00	0.80	0.427	0.035
	Total	0.00	0.00	640.00	0.00	0.00	480.00	1.17	0.244	0.047
Moderate Activity days	Male	2.00	0.00	3.00	1.00	0.00	3.00	0.66	0.507	0.067
	Female	1.00	0.00	2.25	1.00	0.00	2.00	1.60	0.110	0.071
	Total	1.00	0.00	3.00	1.00	0.00	2.00	1.82	0.068	0.074
Moderate Activity duration	Male	30.00	0.00	60.00	25.00	0.00	60.00	0.42	0.673	0.042
	Female	15.00	0.00	40.00	10.00	0.00	30.00	2.06	0.040*	0.91
	Total	20.00	0.00	45.00	11.00	0.00	30.00	2.25	0.024*	0.919
Moderate Activity MET	Male	210.00	0.00	720.00	96.00	0.00	510.00	0.68	0.497	0.069
	Female	120.00	0.00	360.00	16.00	0.00	240.00	2.34	0.020*	0.104
	Total	120.00	0.00	420.00	40.00	0.00	240.00	2.59	0.009*	0.105
Walking days	Male	5.50	4.75	7.00	5.00	4.00	7.00	0.14	0.885	0.014
	Female	5.00	4.00	7.00	5.00	3.00	7.00	2.45	0.014*	0.109
	Total	5.00	4.00	7.00	5.00	3.00	7.00	2.43	0.015*	0.099
Walking duration	Male	40.00	30.00	60.00	35.00	20.00	60.00	0.98	0.326	0.100
	Female	40.00	25.00	60.00	30.00	25.75	60.00	1.91	0.056	0.085
	Total	40.00	26.25	60.00	30.00	21.00	60.00	2.201	0.028*	0.089
Walking MET	Male	693.00	396.00	990.00	462.00	297.00	1126.13	1.22	0.223	0.124
	Female	660.00	330.00	1188.00	495.00	198.00	990.00	2.63	0.009*	0.117
	Total	660.00	330.00	1155.00	495.00	231.00	990.00	2.97	0.003*	0.121
Total MET	Male	1777.50	1440.25	2505.75	1832.25	978.00	2540.50	0.99	0.322	0.101
	Female	1739.75	1041.00	2841.00	1397.10	1013.50	2019.00	3.11	0.002*	0.138
	Total	1753.50	1111.50	2758.50	1479.60	1012.50	2157.87	3.50	<0.001*	0.143

PA: Physical Activity, MET: Metabolic Equivalent of Task, *: Statistical significance, n: Number of participants, n_m: Number of male participants, n_f: Number of female participants, Mann Whitney U test, p<0.05

Physical Activity

While there was no statistically significant difference between the vigorous activity days ($p=0.960$) and vigorous activity MET values ($p=0.244$) of the participants, there was no difference in terms of genders in both groups. The vigorous activity duration was found to be higher in the hybrid education group ($p=0.036$). There was no difference among male ($p=0.497$) and female students ($p=0.161$). While there was no statistically significant difference in the moderate activity days ($p=0.068$), both the moderate activity duration ($p=0.024$, $r=0.919$) and moderate activity MET ($p=0.009$) values were found to be higher in the hybrid education group. The moderate activity duration of female students in the hybrid education group were higher than the female students in the distance education group ($p=0.040$). There was no difference among male students ($p=0.673$). The moderate activity MET of female students in the hybrid education group were higher than the female students in the distance education group ($p=0.020$). There was no difference among male students ($p=0.497$). The number of days ($p=0.015$), minutes per day ($p=0.028$) and MET

($p=0.003$) values with low intensity PA were higher in the hybrid education group. The low intensity PA days of female students in the hybrid education group were higher than the female students in the distance education group ($p=0.014$). There was no difference among male students ($p=0.885$). In terms of low intensity PA duration, there was no difference in terms of genders in both groups. The low intensity PA MET of female students in the hybrid education group were higher than the female students in the distance education group ($p=0.009$). There was no difference among male students ($p=0.223$). Total MET values of the hybrid education group were found to be higher than the distance education group ($p<0.001$). Total MET of female students in the hybrid education group were higher than the female students in the distance education group ($p=0.002$). There was no difference among male students ($p=0.322$) (Table 2).

Health Profile

When the sub-parameters of the participants were examined, no statistically significant difference was found in terms of energy ($p=0.197$), pain ($p=0.533$), sleep ($p=0.202$) and physical activity ($p=0.753$).

Table 3. Comparison of Health Profiles of Hybrid and Distance Education Models

		Hybrid Education Group (n = 300, n _m = 54, n _f = 246)			Distance Education Group (n = 300, n _m = 42, n _f = 258)			Z Value	p Value	Effect Size
		Median	1.Quarter (%25)	3.Quarter (%75)	Median	1.Quarter (%25)	3.Quarter (%75)			
Energy	Male	0.00	0.00	36.80	36.80	0.00	100	2.27	0.023*	0.231
	Female	60.80	33.60	100	60.80	36.80	100	0.09	0.928	0.004
	Total	60.80	0.00	100	60.80	36.80	100	1.29	0.197	0.052
Pain	Male	0.00	0.00	14.55	5.83	0.00	12.91	1.072	0.284	0.109
	Female	11.22	0.00	28.73	10.49	0.00	20.66	1.28	0.200	0.057
	Total	10.49	0.00	26.01	10.24	0.00	20.48	0.624	0.533	0.025
Emotional	Male	32.93	11.63	60.08	54.16	43.36	65.06	2.33	0.020*	0.237
	Female	46.71	20.23	73.90	62.72	34.56	81.59	3.90	<0.001*	0.173
	Total	44.29	18.70	69.83	62.72	33.10	82.93	4.63	<0.001*	0.189
Sleep	Male	14.34	0.00	50.37	43.36	0.00	65.06	1.74	0.083	0.177
	Female	22.37	12.57	50.37	28.67	0.00	55.93	0.56	0.575	0.024
	Total	16.1	0.00	50.37	28.67	0.00	55.93	1.28	0.202	0.052
Social Isolation	Male	0.00	0.00	27.37	28.93	0.00	77.47	2.13	0.033*	0.217
	Female	15.97	0.00	55.93	35.33	0.00	77.47	3.98	<0.001*	0.177
	Total	15.97	0.00	44.07	35.33	0.00	77.47	4.62	<0.001*	0.188
Physical	Male	0.00	0.00	11.20	0.00	0.00	13.37	0.42	0.672	0.042
	Female	9.30	0.00	21.77	9.30	0.00	20.59	0.07	0.946	0.003
	Total	9.30	0.00	20.50	9.30	0.00	20.50	0.315	0.753	0.012
Total	Male	76.30	31.41	188.66	188.98	77.54	287.98	2.55	0.011*	0.260
	Female	192.18	86.62	282.24	214.92	117.95	304.69	2.16	0.031*	0.096
	Total	174.52	71.29	276.14	203.42	113.33	303.77	3.23	0.001*	0.131

*: Statistical significance, n: Number of participants, n_m: Number of male participants, n_f: Number of female participants, Mann Whitney U test, $p<0.05$

The hybrid education group achieved lower scores in emotional ($p < 0.001$) and social isolation parameters ($p = 0.001$) compared the distance education group (Table 3).

DISCUSSION

In this study, physical activities of healthcare students who received hybrid education were found to be significantly higher than those who received distance education. At the same time, it was found that the health profile, sensory and social isolation sub-parameters and total scores of those who received hybrid education were better than those who received distance education.

A difference was found in total physical activity scores of female according to education types. However, the total quality of life score also differed in male and female according to the type of education. According to the results of this study, higher values were found in the hybrid education group compared to the distance education group in terms of moderate activity duration, moderate activity MET, number of walking days and walking MET in women. In male participants, there was no statistically significant difference in any sub-parameters. We think reason that there is no difference between the groups in the results of male participants because male participants are more physically active in daily life.

Studies conducted with young population have shown that physical activity and quality of life are in a linear relationship (20). Due to the Covid-19 pandemic, there has been a decrease in the duties of the young population in the society. In a study conducted on 168 university students who received distance education during the pandemic process, the number of daily steps was determined to be well below the limits set by the World Health Organization (2528 steps / day) and it was found that this negatively affected the quality of life (21). Physical inactivity, which was 21.3% before the pandemic, increased to 65.6% with the pandemic. At the same time, it has been stated that this increase has negative effects on mental health (22).

The most important reason for this situation may be lockdown. As a matter of fact, another study investigating the physical activities of university stu-

dents before the pandemic stated that the physical activity level was 4330 METs in total (23). Huckin et al. (24) concluded that university students living in the United States in December 2020 were more anxious and inactive compared to other periods. It was stated that the education model applied changed the physical activity levels of the students. In a study involving 714 health students who received hybrid-based education, it was found that the amount of movement increased during the week and the total duration of inactivity was shortened. This group participated in the study both before and after the lockdown period. The activity level, which was 1588 MET (Q1-Q3) before the restriction, decreased to 950 MET (Q1-Q3) with the restriction. It has been observed that the hybrid training model increases cardiorespiratory competence and fitness. Inadequacy in vigorous activity was observed in the group (25). In our study, the levels of MET (Q1-Q3) of the students who received hybrid education and those who received distance education according to the preferred education model were 1753 and 1479, respectively. Although there was a significant difference between them, it could not reach a high level. This situation may be related to social isolation, which health profile also affects. Although the hybrid education model increases individual contact, the area of physical activity has been narrowed to reduce contact, as there is a risk awareness in the society. In addition, in accordance with the nationwide lockdown policy, the closure of sports facilities directly affects the result.

The decrease in physical activity due to the Covid-19 pandemic is predictable. Although the hybrid education increased activity, it could not bring it to an optimum level. It is inevitable that this situation has a negative effect on the health profile. Decreased activity increases sedentary lifestyle and prolongs the duration of sleep (26). It has been reported that physical activity should be increased in order to cope with both physical and mental problems caused by the pandemic; decreased physical activity has been shown to be the source of decreased quality of life and mood problems (27). It has been emphasized that with the decrease in physical activity during the pandemic process, mental and public health has decreased

significantly (28). Studies show a decrease in the quality of life not only in the student population but in all segments of the society (29). In our study, we found that the total score of health profile, emotional impact and social isolation sub-parameter scores were better in the hybrid education model. This is an evidence that the individual integration process has a protective effect on some parameters, although not on the overall health profile. At the same time, we know that there is a close relationship with quality of life, and the fact that physical activity was higher in the group receiving hybrid education may be the reason for this difference.

Our study has some limitations. Pre-pandemic information of the students participating in the study is not available. It is not known how much the pandemic affected these students. How much time those distance education students spent in front of the screen was not recorded. There is a need for studies in which the participants are followed for a long time. In this way, it may be possible to make more precise comments about the effects of the pandemic.

Although healthcare students who received hybrid education had significantly higher physical activity levels than those who received distance education, no difference was found between their vigorous activity levels. However, the hybrid education-based system encourages the student to do more activities when compared with the distance education system, albeit at a basic level. It is seen that this situation has positive effects on the health profile of the student. In addition, the education at the university level and the education of the students about the pandemic will affect the situation. It is predictable that students whose risk perception and protection levels increased during the pandemic show social avoidance and personal isolation even in hybrid education. This is an indication of how restrictive the pandemic can be, even in the young population who are expected to be the most physically active. However, both the quality of life and the level of physical activity are higher in students who receive hybrid education, albeit in a limited time, and who continue to feel like a part of the society. As a result, hybrid education has positive effects on general activity rather than high-level physical activity when compared to

distance education. At the same time, it was concluded that due to the effects of taking an active role in society, those who received hybrid education had higher quality of life results in social isolation, emotional and total quality of life scores than those who received distance education.

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REFERENCES

1. Güreşçi M. COVID-19 Salgınında Türkiye’de Kriz Yönetimi İletişimi: T.C. Sağlık Bakanlığı. *Avrasya Sos ve Ekon Araştırmaları Derg.* 2020;7(5):53–65.
2. Erkal E, Ses A, Aydın S, Çalışkan D. COVID-19’un Toplumda Yayılımını Önlemeye Yönelik İlaç Dışı Halk Sağlığı Önlemleri. *Es-kişehir Türk Dünyası Uygul ve Araştırma Merk Halk Sağlığı Derg.* 2020;5:79–95.
3. Karadağ E, Koza Çiftçi Ş, Gök R, Su A, Ergin-Kocatürk H, Selin Çiftçi Ş. COVID-19 Pandemisi Sürecinde Üniversitelerin Uzaktan Eğitim Kapasiteleri. *Üniversite Araştırmaları Derg.* 2021;4(1):8–22.
4. Moore MG, Kearsley G. Distance Education:A Systems View. In: *Distance Education.* 1996. p. 1–18.
5. Sözen N. Covid 19 sürecinde uzaktan eğitim uygulamaları üzerine bir inceleme. *Avrasya Sos ve Ekon Araştırmaları Derg.* 2020;7(12):302–19.
6. Korucu AT, Kabak K. Türkiye’de hibrit öğrenme uygulamaları ve etkileri: bir meta analiz çalışması. *Bilgi ve İletişim Teknol Derg.* 2020;2(2):88–112.
7. Liu S, Zhang H, Ye Z, Wu G. Online Blending Learning Model of School-Enterprise Cooperation and Course Certificate Integration During the COVID-19 Epidemic. *Sci J Educ.* 2020;8(2):66.
8. Violant-Holz V, Gallego-Jiménez MG, González-González CS, Muñoz-Violant S, Rodríguez MJ, Sansano-Nadal O, et al. Psychological health and physical activity levels during the covid-19

- pandemic: A systematic review. *Int J Environ Res Public Health*. 2020;17(24):1–19.
9. Kwok S, Adam S, Ho JH, Iqbal Z, Turkington P, Razvi S, et al. Obesity: A critical risk factor in the COVID-19 pandemic. *Clin Obes*. 2020;10(6):e12403.
 10. Lippi G, Sanchis-Gomar F. An Estimation of the Worldwide Epidemiologic Burden of Physical Inactivity-Related Ischemic Heart Disease. *Cardiovasc Drugs Ther*. 2020;34(1):133–7.
 11. Pugliese G, Vitale M, Resi V, Orsi E. Is diabetes mellitus a risk factor for COronaVirus Disease 19 (COVID-19)? *Acta Diabetol*. 2020;57(11):1275–85.
 12. Alsancak F, Kara HZ. Koronavirüs Pandemisinde Problemlere Karşı Olumsuz Tutum Geliştirme Üzerine Bir Çalışma. *Electron Turkish Stud*. 2020;15(6):63–78.
 13. Hossain MM, Sultana A, Purohit N. Mental health outcomes of quarantine and isolation for infection prevention: a systematic umbrella review of the global evidence. *Epidemiol Health*. 2020;42:e2020038.
 14. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet (London, England)*. 2020;395(10227):912–20.
 15. Tang W, Hu T, Hu B, Jin C, Wang G, Xie C, et al. Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *J Affect Disord*. 2020;274:1–7.
 16. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, Pratt M, Ekelund UL, Yngve A, Sallis JF OP. International physical activity questionnaire: 12-country reliability and validity. *Medicine & science in sports & exercise*. *Med Sci Sport Exerc*. 2003;35(8):1381–95.
 17. Saglam M, Arikan H, Savci S, Inal-Ince D, Bosnak-Guclu M, Karabulut E, et al. International physical activity questionnaire: Reliability and validity of the Turkish version. *Percept Mot Skills*. 2010;111(1):278–84.
 18. Hunt SM, McKenna SP, McEwen J, Williams J, Papp E. The Nottingham health profile: Subjective health status and medical consultations. *Soc Sci Med Part A Med Psychol Med*. 1981;15(3 PART 1):221–9.
 19. Kucukdeveci AA, McKenna SP, Kutlay S, Gursel Y, Whalley D, Arasil T. The development and psychometric assessment of the Turkish version of the Nottingham Health Profile. *Int J Rehabil Res*. 2000 Mar;23(1):31–8.
 20. Şahbaz Piriñçi C, Cihan E, Ün Yıldırım N. Üniversite Öğrencilerinde Fiziksel Aktivite Düzeyinin Yaşam Kalitesi, Kronik Hastalık Varlığı, Sigara Kullanımı ve Akademik Başarıyla Olan İlişkisi. *KTO Karatay Sağlık Bilim Derg*. 2020;1(1):15–23.
 21. Cihan E, Piriñçi ÇŞ. COVID-19 Pandemi Sürecinde Genç Popülasyonun Yaşam Kalitesinin Fiziksel Aktivite Seviyesi ve Depresyon Düzeyi ile İlişkisi. *Selçuk Sağlık Derg*. 2020;1:41,53.
 22. Xiang M, Zhang Z, Kuwahara K. Impact of COVID-19 pandemic on children and adolescents' lifestyle behavior larger than expected. *Prog Cardiovasc Dis*. 2020;63(4):531–2.
 23. Ölçücü B, Vatanserver Ş, Özcan G, Çelik A, Paktaş Y. Üniversite Öğrencilerinde Fiziksel Aktivite Düzeyi İle Depresyon ve Anksiyete İlişkisi. *Uluslararası Türk Eğitim Bilim Derg*. 2015;2015(4):294–303.
 24. Huckins JF, DaSilva AW, Wang W, Hedlund E, Rogers C, Nepal SK, et al. Mental Health and Behavior of College Students During the Early Phases of the COVID-19 Pandemic: Longitudinal Smartphone and Ecological Momentary Assessment Study. *J Med Internet Res*. 2020;22(6):e20185.
 25. Luciano F, Cenacchi V, Vegro V, Pavei G. COVID-19 lockdown: Physical activity, sedentary behaviour and sleep in Italian medicine students. *Eur J Sport Sci*. 2020;1–10.
 26. Melero-Cañas D, Morales-Baños V, Manzano-Sánchez D, Navarro-Ardoy D, Valero-Valenzuela A. Effects of an Educational Hybrid Physical Education Program on Physical Fitness, Body Composition and Sedentary and Physical Activity Times in Adolescents: The Seneb's Enigma. *Front Psychol*. 2021;11(January):1–11.
 27. Jiménez-Pavón D, Carbonell-Baeza A, Lavie CJ. Physical exercise as therapy to fight against the mental and physical consequences of COVID-19 quarantine: Special focus in older people. *Prog Cardiovasc Dis*. 2020;63(3):386–8.
 28. Chen P, Mao L, Nassis GP, Harmer P, Ainsworth BE, Li F. Returning Chinese school-aged children and adolescents to physical activity in the wake of COVID-19: Actions and precautions: COVID-19 and School Physical Activity. Vol. 9, *Journal of Sport and Health Science*. Shanghai University of Sport; 2020. p. 322–4.
 29. Epifanio MS, Andrei F, Mancini G, Agostini F, Piombo MA, Spicuzza V, et al. The Impact of COVID-19 Pandemic and Lockdown Measures on Quality of Life among Italian General Population. *J Clin Med*. 2021;10(2):289.