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## Examining the Digital Addiction Situation of University Students During the COVID-19 Pandemic

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### ABSTRACT

The study aims to determine the status of digital addiction among university students during the COVID-19 pandemic. Between February and April 2021, a total of 1036 university students from Çankırı Karatekin University and Kütahya Dumlupınar University students who voluntarily agreed to participate in the study participated in the cross-sectional descriptive study. An Introductory Information Form and a Digital Addiction Scale were used in the research. Individual consent were obtained from the participants and the data were collected with the Google form link. The data analysis used t-tests for independent groups and ANOVA tests for multiple groups. The mean age of the students participating in the study was 20.25±1.88. 79.5% of the students were girls, and 45.1% were first-year students. The mean score of the Digital Addiction Scale for the students was 76.44±19.676, the mean score of the game sub-dimension score was 20.53±8.336, the mean score of the social media dimension was 37.36±9.737, and the mean score of the effect on social life dimension was 18.54±6.791. Digital addiction was found to be statistically significant higher in male than in female. While digital addiction was high in the male gender in the game sub-dimension, it was higher in the female gender in the social media sub-dimension. The time spent by the students on the internet outside the course after pandemic increased according to before pandemic. As the daily on the internet outside the course use time increased, the digital addiction score increased. The increase in digital addiction, one of the biggest dangers brought by the developing technology, raises the concern of being a risk for future generations.

**Keywords:** Digital Addiction, University Student, COVID-19 Pandemic

## 1. INTRODUCTION

The Turkish Language Association defines "addicted" as being subject to the desire, strength, or support of something else, excessively fond of a person or object, either materially or morally (Türk Dil Kurumu). An addiction is defined as the inability to stop taking a substance even if it produces physical, psychological, or social problems, the inability to stop even if one wants to stop, and the inability to avoid the desire to consume the substance (T.C.Sağlık Bakanlığı). The broader definition of addiction is that the person uses a substance that he is used to constantly, increases the amount of use of this substance over time, shows withdrawal symptoms when he cannot access the substance, spends time to access this substance, neglects his responsibilities, cannot quit even though he sees the problems caused by this substance and wants to quit (Ögel, 2001). The primary definition here is substance addiction (drug addiction). Although there have been discussions for years that substance addiction is a moral issue and emerges from character weakness, it has been proven that this idea is not accurate with developments in medicine, psychology, and social sciences in recent years (Bağımlılıkla Mücadele Kurulu).

Addiction can be divided into two categories. The first is substance addiction, and the other is behavioral addiction (Arslan, 2019a). Addiction to substances such as alcohol, tobacco, marijuana, cocaine, opiates (opium poppy), barbiturates (tranquilizers and sleeping pills), and benzodiazepines (sedative and anxiety medications) is called substance abuse (Demirdel et al., 2021). Behavioral addiction can be defined as shopping, gambling, being stuck in a relationship, exercising, and being unable to stay away from digital tools or the internet (US Psikiyatri Enstitüsü, 2021). People with behavioral addictions continually think about these behaviors and are more likely to engage in them. When they cannot do these behaviors, they experience feelings like reluctance, pessimism, inability to enjoy life, desire to cry or burst of energy outburst, and anger. They can show conflict with their environment quickly (Arslan, 2019a).

One of the subjects that should be dealt with in the behavioral addiction class is digital addiction. Today, with the rapid advancement of technology and the penetration of the internet into every aspect of our lives, smartphones becoming an indispensable part of our lives is the most significant factor that triggers digital addiction. Although it is an undoubted fact that digital technology makes our lives easier in all areas, it also brings some negativities when it is not used correctly. Young reports that the compulsory use of the internet in our lives makes some types of behavior common, such as the anxiety of being constantly online, which leads to problems of not being able to control or reduce the time that can be connected. In addition to these behaviors, he states that the internet, which affects users personally, socially, or professionally, uses the internet to calm and distract individuals from the problems and unwanted situations in their lives, and this situation causes the development of addictive features by changing their humor. In a study conducted by Young on adults, it was determined that digital addiction affects people's lives seriously negatively in terms of academic, financial, professional, and relationships (Young, 1998). Even worse, the symptoms of digital addiction are similar to those of drug addicts. It is an excellent example of an individual getting angry and worried when he/she does not have a smartphone in hand. Like all addictions that psychiatry describes, digital addiction is not easy to recognize. Much research is needed on digital addiction, which is even the subject of diagnostic and statistical manuals of mental illness accepted as a guide for the diagnosis of mental illness, published by the American Psychiatric Association (Ungaro et al., 2018).

Digital addiction has become a serious problem today, and it will face us in much more severe dimensions in the future. The use of digital technology among children and adolescents has increased exponentially in the last two years, with the effect of the COVID-19 pandemic, which has progressed faster than it should. The pace of technological innovation has exceeded the digital knowledge base of many parents and educators. The risks to children and youth remain increasing, including an imbalance between the virtual and real worlds, reckless information sharing in public forums, plagiarism, and cyberbullying behavior, even though the benefits of digital technology are many. There is a passionate need to be accepted and connected in the pre-adolescent world, an exciting world of new opportunities. Digital media provide opportunities for identity and social connection. All these bring the adverse risks of digital addiction (Barreto & Adams, 2011).

The study aims to detect the digital addiction situation of university students during the COVID-19 pandemic.

## 2. METHOD

### 2.1. Study Design and Setting

The study is a descriptive cross-sectional study. The study was conducted between February and April 2021 at Çankırı Karatekin University and Kütahya Dumlupınar University.

### 2.2. Study Population and Sample

All students of Çankırı Karatekin University and Kütahya Dumlupınar University constitute the population of the study. On the other hand, the sample consists of 1036 university students who voluntarily agreed to participate in the study between February and April 2021.

### 2.3. Data Collection

Researchers who work at the universities mentioned that communication with students was carried out through the information processing system of the universities. Convenience sampling method was used in the study. Data was collected through Google Form. Inclusion criteria for the study were being a student of the university as mentioned earlier, agreeing to participate in the study, and answering all questions on the google form. Exclusion criteria for the study were not agreeing to participate in the study and not answering all questions on the Google Form.

### 2.4. Data Collection Tools

*Questionnaire Form:* The researchers created a demographic data form in line with the relevant literature to obtain information about the socio-demographic characteristics of the individuals forming the sample. The participant's age, gender, education level, and phone and tablet usage are included in this form.

*Digital Addiction Scale:* The "Digital Addiction Scale" developed by Arslan, Kırık, Karaman, and Çetinkaya (2015) and used in the study titled "Digital Addiction in High School and University Students" was used to measure digital addiction in the study. The statements in the scale developed based on a 5-point Likert scale were scored as "1: Strongly Disagree", "2: Disagree", "3: Neither agree nor disagree", and "4: Agree", and "5: Strongly Agree". In a study conducted by Arslan et al. (2015), the scale's construct validity was checked with the data obtained from the application results. It was determined that the scale had a three-factor structure with the help of the "Scree Plot." After the factor analysis, some items were removed from the scale because their factor loading

values were low or had similar load values in more than one dimension. Consequently, a 29-item scale with a three-factor structure was obtained. Arslan et al. determined the Cronbach's Alpha reliability coefficient of the digital addiction scale as 0.89 (Arslan et al., 2015). Permission was obtained from the author for the use of the scale.

Eryılmaz and Çukurluöz also used the Digital Addiction Scale. Chronbach's Alpha coefficient was obtained by performing a reliability analysis to determine the reliability levels of the scale and its sub-dimensions. According to the results of the analysis (Table 1), it is reported that the Cronbach's Alpha reliability level of the digital addiction scale varies between 0.905, the reliability level of the sub-dimensions varies between 0.852 and 0.906, and their reliability is sufficient (Eryılmaz & Çukurluöz, 2018).

In the current study, the reliability of the digital addiction scale was measured. The game sub-dimension was 0.835, the social media sub-dimension was 0.885, the social life sub-dimension was 0.873, and the total scale was 0.908 (Table 1).

Table 1. Digital Addiction Scale Reliability Analysis

Reliability Analysis	Number of Items	Cronbach's Alpha I	Cronbach's Alpha II
Digital Addiction Scale	29	0.905	0.908
Game sub-dimension	11	0.852	0.835
Social media sub-dimension	12	0.906	0.885
Negative impact on social life sub-dimension	6	0.853	0.873

Cronbach's Alpha I: Study of Eryılmaz & Çukurluöz, 2018; Cronbach's Alpha II: Current study

## 2.5. Evaluation of Data

IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp. package program was used in data analysis. Descriptive data are presented as percentages and frequency. Whether the data showed normal distribution or not was determined by visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). Since the data exhibited normal distribution, the t-test was used in independent groups, and the ANOVA test was used in multiple groups.

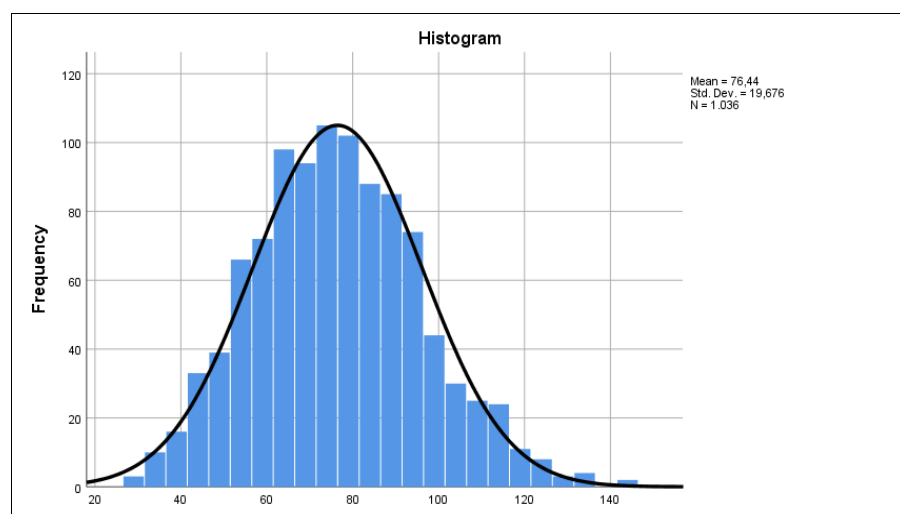


Figure 1. Normality data

In current study, mean  $\pm$  standart deviation was  $76.44 \pm 19.67$  and median was 76.00. The variable was considered to be normally distributed because the mean was close to the median, the coefficient of variance (the ratio of the standard deviation to the mean) was less than 30% (25% in the current study), the histogram appearance, and the Kolmogorov-Smirnov test was greater than 0.05.

Table 2. Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Grandtotal	0.049	1036	0.200	0.994	1036	0.000

a: Lilliefors Significance Correction

## 2.6. Study Ethics

Those who approved the "I agree to participate in the study," the first question of the survey form carried out on the Google form, was able to continue to fill out the survey. Ethics committee approval for the study was obtained from the ethics committee of Çankırı Karatekin University with approval number 19 dated 14-01-2021.

### 3. RESULTS

The mean age (Min-Max: 17-37) of the students participating in the study was  $20.25 \pm 1.88$ . Of the students, 79.5% were girls, and 45.1% were first-grade students. Of the students, 39.6% spent 3-5 hours on their online courses, and 33% spent 3-5 hours outside the course. Of the students, 44.2% spent 1-3 hours on the internet before the pandemic (Table 3).

The mean total score on the Students' Digital addiction scale was  $76.44 \pm 19.676$ , the mean score of the game sub-dimension was  $20.53 \pm 8.336$ , the mean score of the social media dimension was  $37.36 \pm 9.737$ , the mean score of the social impact dimension was  $18.54 \pm 6.791$  (Table 4).

Table 3. Distribution of Participants' Demographic Information

Characteristic	n	%	
Gender	Female	824	79.5
	Male	212	20.5
Grade	1.Grade	467	45.1
	2.Grade	400	38.6
	3.Grade	58	5.6
	4.Grade	62	6.0
	5.Grade	24	2.3
	6.Grade	25	2.4
Time spent in online courses	<1h	46	4.4
	1-3h	322	31.1
	3-5h	410	39.6
	5h>	258	24.9
Time spent on the internet outside of course	<1h	132	12.7
	1-3h	319	30.8
	3-5h	342	33.0
	5>	243	23.5
Time spent on the internet before the pandemic	<1h	230	22.2
	1-3h	458	44.2
	3-5h	228	22.0
	5>	120	11.6
Departments where students study	Midwifery	112	10.8
	Nursing	40	3.9
	Medical School	166	16.0
	Social Services	2	.2
	Immediate Aid	54	5.2
	Elderly Care	150	14.5
	Home Care	55	5.3
	Child Development	65	6.3
	Veterinarian	25	2.4
	Environmental Health	16	1.5
	Sociology	10	1.0
	Teaching	32	3.1
	Engineer	14	1.4
	Physical Med. and Rehab.	129	12.5
Dietitian	3	.3	
Laboratory Techniques	163	15.7	

Comparison of students' digital addiction scale and its sub-dimensions in terms of some features, while male students' digital addiction scale total score, game dimension is statistically higher compared to the female gender, social media sub-dimension is higher in the female gender.

Table 4. Change of Digital Addiction Scale and Sub-Dimensions

Characteristic	X±SD	Min	Max
Game Dimension	$20.53 \pm 8.336$	11	54
Social Media Dimension	$37.36 \pm 9.737$	11	55
Impact on Social Life Dimension	$18.54 \pm 6.791$	7	35
Digital Addiction Scale total score	$76.44 \pm 19.676$	29	144

It has been seen that the mean score of the game sub-dimension scale is higher in students whose time spent in online courses is less than 1 hour, and the mean score of the social media dimension is high in students whose time spent online courses is over 5 hours. Digital addiction scale total score, game dimension, social media dimension, and social life impact dimension average of the students who spent more than 5 hours on the internet outside of the course and the time they spent on the internet before the pandemic were statistically higher ( $p < 0.05$ ) (Table 5).

Table 5. Change of Digital Addiction Scale and Sub-Dimensions According to Sociodemographic Characteristics

<b>Gender (X±SD)</b>	<b>Female</b>		<b>Male</b>		<b>Test Value</b>	<b>P</b>
Game Dimension	19.50±7.83		24.55±8.99		t:-8.106	<b>0.000*</b>
Social Media Dimension	37.73±9.79		35.93±9.37		t:2.413	<b>0.016*</b>
Impact on Social Life Dimension	18.49±6.68		18.75±7.18		t:-0.499	0.618
Total	75.72±19.64		79.23±19.61		t:-2.318	<b>0.021*</b>
<b>Grade (X±SD)</b>	<b>1.Grade</b>	<b>2.Grade</b>	<b>3.Grade</b>	<b>4.Grade</b>		
Game Dimension	20.97±8.88	19.98±7.65	19.57±6.82	20.69±9.37	F:1.205	0.305
Social Media Dimension	36.90±9.59	37.33±9.81	38.47±8.95	39.06±10.4	F:1.509	0.184
Impact on Social Life Dimension	18.01±6.80	18.79±6.86	19.24±5.99	19.26±6.69	F:1.957	0.083
<b>Time spent in online courses (X±SD)</b>	<b>&lt;1h</b>	<b>1-3h</b>	<b>3-5h</b>	<b>5h&gt;</b>		
Game Dimension	23.43±9.87	20.78±8.31	19.89±7.79	20.73±8.79	F: 2.842	<b>0.037*</b>
Social Media Dimension	34.85±12.84	36.44±9.68	37.83±9.39	38.23±9.59	F:2.999	<b>0.030*</b>
Impact on Social Life Dimension	19.15±8.04	18.00±6.69	18.82±6.57	18.66±7.00	F: 1.059	0.366
Total	77.43±26.78	75.23±19.7	76.53±18.01	77.62±20.6	F:0.761	0.516
<b>Time spent on the internet outside of course (X±SD)</b>						
Game Dimension	18.04±6.84	18.83±7.54	20.68±7.80	23.91±9.61	F:23.145	<b>0.000*</b>
Social Media Dimension	30.30±10.64	34.95±8.44	38.39±9.05	42.93±8.21	F:68.696	<b>0.000*</b>
Impact on Social Life Dimension	16.60±6.21	17.05±6.35	19.18±6.75	20.65±6.99	F:18.448	<b>0.000*</b>
Total	64.94±18.7	70.83±17.5	78.25±17.9	87.50±19.1	F:58.626	<b>0.000*</b>
<b>Time spent on the internet before the pandemic (X±SD)</b>						
Game Dimension	19.29±7.77	19.66±7.68	21.88±8.66	23.70±9.92	F: 11.509	<b>0.000*</b>
Social Media Dimension	34.28±10.3	36.08±9.10	40.60±8.79	42.03±9.25	F: 30.270	<b>0.000*</b>
Impact on Social Life Dimension	18.50±7.15	17.88±6.43	18.91±6.56	20.44±7.48	F: 4.863	<b>0.002*</b>
Total	72.07±20.5	73.62±18.3	81.39±18.2	86.18±20.3	F: 22.888	<b>0.000*</b>

\*p<0.05 statistical significance, t: t test, F: ANOVA, X±SD: Mean±Standard Deviation

#### 4. DISCUSSION

In this part of the study, the relationships between university students' digital addiction situation during the COVID-19 pandemic, the level of digital use compared to pre-pandemic, digital addiction and the variables of students' gender, what grade they study, and the time they spend on the internet was discussed in accompaniment with the literature.

Considering the time spent by the students on the internet outside the course before and after the pandemic, while the rate of time spent on the internet outside the course more than 5 hours before the pandemic was 11%, it is observed that this rate increased to 23% after the pandemic. Besides, while the rate of "3-5 hours" time spent on the internet outside the course was 22% before the pandemic, it is observed that this rate increased to 33% after the pandemic. The university student, who had to attend online courses for 3-5 hours a day due to the pandemic, spent 8-10 hours daily on the computer during the pandemic. In a study; it has been reported that increased digital use during the pandemic period can cause psychological disorders in young people, which is similar to substance use addiction (Gómez-Galán et al., 2020). As digital addiction, which is one of the biggest dangers brought about by the advancing technology, will develop faster, this event brings the concern that it will put future generations at risk.

In the study conducted by Arslan et al., the digital addiction total score was 74.44. In the study, the total score of the game sub-dimension of university students, which is one of the sub-dimensions of digital addiction, was 19.45, the total score of the social media sub-dimension was 39.54, and the total score of the adverse effects on daily life sub-dimension was 15.45 (Arslan et al., 2015). In our study, university students' digital addiction total score was 76.44, the game sub-dimension was 20.53, the social media sub-dimension was 37.36, and the negative impact on social life sub-dimension was 18.54. It was thought that the reason the total score of the negative impact on social life was higher in our study by the literature might be because our study was conducted during the pandemic period.

In a study conducted on a sample group consisting of high school students, boys' mean digital addiction level was higher than the mean of girls' digital addiction by gender. It was observed that the mean of boys was higher than girls in the game dimension and social life impact dimension of the digital addiction scale, and the addiction level of girls in the social media dimension was significantly higher than the addiction level of boys (Eryılmaz & Çukurluöz, 2018). In another study, it is stated that female students have a significantly higher addiction than male students according to the dimension of social media addiction (Balci & Gülnar, 2009). In a study conducted with university students in Spain under pandemic restrictions; digital addiction manifested itself with high video game



consumption and male gender came to the fore in game addiction (Gómez-Galán et al., 2021). In another study, similarly, it was reported that gender is an effective factor in digital addiction and that the total addiction score in male students is significantly higher than in females, and that the mean score of male students in the game sub-dimension and negative impact on social life sub-dimension of the study is significantly higher than that of female students (Topal, 2021). Consistent with the literature, in our study, the digital addiction total score was found to be significantly higher in male students compared to female students. The mean score of game addiction, which is one of the sub-dimensions of the scale, was higher in boys than in girls, in line with the literature; on the other hand, social media addiction was higher in girls, in line with the literature, but in our study, there was no gender difference in the sub-dimension of negative impact on social life. It is thought that the reason for this is that our study was carried out during the pandemic period, that there were restrictions in all areas of life due to the epidemic, and that it is impossible to carry out many social activities under pandemic conditions.

In a study conducted on university students studying in the Department of Health Management in the context of gender factors in digital addiction studies conducted with different scales, internet addiction of boys was found to be significantly higher than that of girls (Yurdakoş & Biçer, 2019). In a study whose sample consisted of Vocational School students, it was observed that there was no difference between genders in terms of general digital addiction scale score and the levels of addiction, excessive use, and inability to restrain oneself, which are sub-dimensions of digital addiction, were significantly higher than male students (Bağcı, 2019). Since the sub-dimensions of the scale are different from the sub-dimensions of the scale we used in our present study, it is not clear whether the digital addiction level of the study belongs to the internet games or social media dimension. Therefore, in the study conducted by Bağcı, we think that the reason for the high level of addiction among female students is related to the social media dimension.

In the relationship of digital addiction according to the grades of students, a study did not find a significant relationship between internet addiction and the grades of university students. Addiction was found to be at the same level among undergraduate students from 1st-grade to 4th-grade (Yurdakoş & Biçer, 2019). Similarly, in another study, no difference was found between students studying in the 1st and 4th grades (Arslan, 2019b). Consistent with the literature, no significant difference between grades was observed in our study either.

In a study, the level of addiction was found to be significantly higher in university students who used social media for more than 5 hours a day compared to those who used it for 3-4 hours a day. It was found to be higher in students using 3-4 hours a day than those using 1-2 hours a day (Aktan, 2018). In another study, it was determined that the variables of using smartphones for more than 2 hours in young people contribute to the formation of internet addiction (Karaca et al., 2021). In a different study conducted with undergraduate students, in students who use their smartphones more than 4 hours a day, the addiction level was higher in the psychological and social dimension, health dimension, overuse dimension, busy dimension, technology dimension, and all addiction questionnaire scores of digital addiction compared to students who used 2-4 hours and less than 2 hours (Aljomaa et al., 2016). Consistent with the literature, in our study, it was found that the addiction level was highest in students who used the internet more than 5 hours a day outside of the course and decreased in those who used the internet for 3-5 hours a day and those who used it for 1-3 hours, respectively. The level of digital addiction increases as the duration of internet use increases in all sub-dimensions of digital addiction's impact on gaming, social media, and social life.

## 5. CONCLUSION AND SUGGESTIONS

### 5.1. Conclusion

In our study, it was determined that due to the COVID-19 pandemic, the time spent on the internet outside of the course increased in university students, and the time in front of the digital screen occupied a large part of the day together with online courses. It was found that digital addiction was higher in the game dimension in boys and higher in the social media dimension in girls. It was found that there is no difference according to the classes the students study, and the increase in the time spent on the internet outside the course increases digital addiction.

### 5.2. Suggestions

It has been reported that the increase in digital addiction among university students reduces learning satisfaction in lessons (Besalti & Satici, 2022). Similarly, we, as faculty members, observed that students' participation in online classes is low and that education is not as efficient as in face-to-face classes. In universities, as the effect of the pandemic decreases, as many courses as possible should be held face-to-face.

In a meta-analysis study to determine the global prevalence of digital addiction; it has been reported that the prevalence of digital addiction is high in low- and middle-income countries (Meng et al., 2022). In our country,

which is a middle-income country, measures should be taken to protect our youth, who are the guarantee of our future. The issue of digital addiction, which can lead to psychological disorders, should be carefully considered.

Social policies have a significant role to play in protecting young people from the dangers of digital addiction. The effect of the pandemic has started to decrease gradually in the world and in our country. Face-to-face courses should be re-started, social activities should be supported, and psycho-social development of students should be considered by following protective measures in universities. Young people should be directed to social responsibility projects under the guidance of university administrations. Ministry-supported and institutional projects should be increased, and students should be allowed to use the knowledge they receive at school for the benefit of society.

### Conflict Interests

The authors have no conflicts of interest to declare.

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