Education Mind

EDUCATION MIND
2024, VOL 3, NO 2, 284-293
DOI: 10.58583/EM.3.2.14

Research Article

Open Access

The relationship between technology addictions and psychological resilience of high school students in the Covid-19 period

Buğra Kemal Korkut [1], Tuğçe Peker Akman [1]

[1] Independent Researcher, Ordu, Turkey

ARTICLE HISTORY

Received: 23.08.2024
Accepted: 29.09.2024

KEYWORDS

Covid-19
Technology addiction
Psychological resilience
Counselling
Psychoeducational

CORRESPONDENCE

Tuğçe Peker Akman,
tugcepeker92@gmail.com

ABSTRACT

It is aimed to examine the relationship between technology addiction and psychological resilience of high school students during the Covid-19 period. For this purpose, the research group of the study consists of 598 high school students, 425 (71.1%) female and 173 (28.9%) males, studying in Giresun and Tokat. The Technology Addiction Scale, the Short Psychological Resilience Scale and the Personal Information Form prepared by the researchers were used for the volunteer students participating in the study. SPSS 20.0 package program was used in the analysis of the data. Pearson Product-Moment Correlation Coefficient was used to determine the relationship between technology addiction and resilience. Independent Samples T-test was used to determine whether technology addiction and psychological resilience make a significant difference according to gender. As a result of the research, it has been determined that there are negative significant relationships between technology addiction and psychological resilience, which are the sub-dimensions of technology addiction, social network addiction, instant messaging addiction, online game addiction and website addiction. In addition, it was observed that there was a significant gender difference in the sub-dimensions of technology addiction, instant messaging, online game addiction and website addiction. It was observed that instant messaging and website addiction was higher in women, and online game addiction was higher in men. At the same time, it was concluded that psychological resilience creates a significant difference according to gender and that the psychological resilience of male students is higher than that of females.

Introduction

Zara (2012), individuals encounter various events throughout their lives, some of which coincide with crisis periods. She identifies these crises as divorce, traffic accidents, death, and epidemics. It is noted that epidemics, which are expressed as one of these crises, can affect many people (Jones & Salathe, 2009). It is also stated that previous epidemic diseases, such as SARS, Swine Flu, and EBOLA, affected individuals globally and had a worldwide impact (Tosun, 2017).

The latest of these diseases, reported by the World Health Organization (WHO), is Covid-19, which emerged in Wuhan, China, and led to the declaration of a pandemic (Til, 2020). In addition to causing numerous deaths, the epidemic is observed to have affected individuals' lives psychologically, socially, and educationally. The United Nations Turkey (2020) states that at least 91% of students worldwide were affected by the suspension of face-to-face education in schools. To prevent students from falling behind in school and classes due to the suspension of face-to-face education and to ensure continuity in education, the decision was made to transition to distance learning (Telli-Yamamoto & Altun, 2020). It is noted that teachers, students, and parents actively worked to adapt to the distance education process and manage it effectively and successfully (Çakın & Akyavuz, 2020).

In a rapidly digitizing world, individuals have begun to spend more time with technological devices such as phones, tablets, computers, or game consoles due to the influence of technological advancements (Ertemel & Aydın, 2018). The use of technological devices in online education has resulted in students spending more time with these devices. The Ministry of Family and Social Policies of Turkey (2013) reports that technology addiction is particularly high among school-aged children. Technology addiction is defined as the inability to control the desire to excessively use the internet and displaying nervous behaviors when deprived of it (Arısoy, 2009). Arısoy (2009) states that technology addiction negatively impacts individuals both physically and psychologically, leading to problems in family, school, work, and social life. He emphasizes that technology use has become a serious risk factor, especially among young people aged 16-18.

Twenge (2017) notes that excessive use of technology negatively affects young people's socialization and leads to issues such as depression and insomnia. A study conducted with American youth found that individuals who use technology intensely have higher tendencies toward depression (Twenge, 2017). Similarly, it is stated that individuals who spend long periods with technological devices experience attention problems and are faced with depression and sleep disorders (Ahuja & Kumari, 2009).

It can be suggested that while addiction levels may increase in the face of negative experiences, psychological resilience may also be negatively affected. Psychological resilience is defined as an individual's ability to protect themselves against adverse experiences (Doty, 2010). Yalçın (2013) describes psychological resilience as a shield against negative situations in life and states that individuals with high psychological resilience have the power to influence those around them and show fewer signs of depression.

The pandemic, which has affected the world from the beginning of 2020 until today, impacts individuals socially and psychologically, leading to increased anxiety (Bilge & Bilge, 2020). Kul, Demir, and Katmer (2020) suggest that activating internal and external protective factors during this period positively influences psychological resilience. They also state that psychologically resilient individuals navigate stressful situations more easily with the support of personal and social protective factors. In their study examining the psychological resilience, anxiety, and sense of meaning in life of individuals during the Covid-19 period, they found significant negative correlations between psychological resilience and state anxiety (Kul, Demir & Katmer, 2020).

Like everyone else in society, adolescents have been affected by the Covid-19 period in many ways. Students, in particular, who have had to continue their education online, are engaging with technology more than usual. This situation could potentially lead to technology addiction. A review of the literature reveals studies suggesting that uncertain threats, such as pandemics, increase individuals' anxiety levels (Zou et al., 2020). However, it is notable that there are still very few studies on the psychological effects of the coronavirus pandemic (Jin et al., 2020).

Ince and Yılmaz (2020) point out that adolescents prefer to communicate in virtual environments rather than face-to-face in their social lives and tend to procrastinate on their duties and responsibilities due to uncontrolled use of technology. Morahan-Martin and Schumacher (2000) state that excessive and uncontrolled use of technology significantly harms an individual's life. Since excessive technology use is thought to affect individuals' psychological resilience, this study aims to examine the relationship between technology addiction and psychological resilience in high school students who enjoy spending a lot of time with technology during the Covid-19 period. The research problems are defined as follows:

1. Is there a significant relationship between technology addiction and psychological resilience?
2. Does technology addiction among high school students during the Covid-19 period show a significant difference based on gender?
3. Does psychological resilience among high school students during the Covid-19 period show a significant difference based on gender?

Method

Research model

This study, which aims to examine the relationship between high school students' technology addiction and their psychological resilience, is designed using the correlational and descriptive survey model, one of the quantitative research approaches.

Sample

The research group for this study consists of 598 high school students studying in Giresun and Tokat provinces. Among the volunteer students participating in the study, 425 (71.1%) are female, and 173 (28.9%) are male. When examined by grade level, 252 students are in the ninth grade (42.1%), and 346 students are in the tenth grade (57.9%).

Data collection tools

In the collection of research data, the Personal Information Form, Technology Addiction Scale, and Brief Resilience Scale were used. Details regarding the forms used are presented below:

Technology addiction scale

The Technology Addiction Scale developed by Aydın (2017) was used to determine students' levels of technology addiction. The scale consists of 24 items and has four sub-dimensions: social network addiction, instant messaging addiction, online gaming addiction, and website addiction. It uses a 5-point Likert-type rating scale (Aydın, 2017). While interpreting the arithmetic averages for each subscale, the highest score is 30, and the lowest score is 6. The internal consistency coefficients of the scale are: .79 for the social network addiction subscale, .81 for the instant messaging addiction subscale, .90 for the online gaming addiction subscale, and .86 for the website addiction subscale. In this study, the internal consistency coefficient for all dimensions was found to be .90, .75 for the social network addiction subscale, .74 for the instant messaging addiction subscale, .80 for the online gaming addiction subscale, and .83 for the website addiction subscale.

Brief resilience scale

The Brief Resilience Scale, developed by Smith et al. (2008) to measure students' psychological resilience, was adapted into Turkish by Doğan (2015). The 6-item scale uses a 5-point Likert-type

evaluation, with items 2, 4, and 6 being reverse-coded. Higher scores on the scale indicate higher psychological resilience. The internal consistency coefficient of the scale was found to be .85 (Doğan, 2015). In this study, the internal consistency coefficient was found to be .81.

Data analysis

To conduct the research, consultation with field experts was done to decide which measurement tool to use. Permissions were obtained from those who adapted the planned measurement tools, and an ethical committee approval document was acquired. Once the permission process was completed, the measurement tools were prepared on an online platform, and the link was shared with students via teachers to complete the tools on a voluntary basis.

Before starting statistical analyses to achieve the research objectives, data control and assumption testing are necessary (Field, 2013). Therefore, missing value analysis, outlier analysis, and normal distribution analysis were initially conducted. It was determined that there were no missing values, and for the outlier analysis, the scores of the variables were converted to standard z-scores to determine how much they deviated from the mean (Tabachnick & Fidell, 2015). Z-scores not falling between -3 and +3 were removed from the data set (n = 18). For the normality assumption, skewness and kurtosis values of the variables were examined (Table 1), and it was found that they met the normal distribution assumption based on the accepted range of -1.5 to +1.5 in the literature (Tabachnick & Fidell, 2015). SPSS 20.0 package program was used for data analysis, and Pearson Product-Moment Correlation Coefficient and Independent Samples T-test were utilized.

Table 1 Skewness and Kurtosis Coefficients of the Measurement Tools

	N	Min.	Max.	Mean	Sd	Skewness		Kurtosis	
						Value	Error	Value	Error
TA	598	24.00	94.00	43.98	14.72	.75	.10	.13	.20
SNA	598	6.00	26.00	12.04	4.60	.60	.10	-.28	.20
IMA	598	6.00	26.00	11.48	4.50	.85	.10	.25	.20
OGA	598	6.00	24.00	9.37	4.32	1.28	.10	.73	.20
WA	598	6.00	25.00	11.09	4.73	.81	.10	-.18	.20
PR	598	6.00	30.00	18.89	5.28	-.09	.10	-.29	.20

TA: Technology Addiction, SNA: Social Network Addiction, IMA: Instant Messaging Addiction, OGA: Online Gaming Addiction, WA: Website Addiction, PR: Psychological Resilience

Findings

During the data analysis process, Pearson Product-Moment Correlation Coefficient was used to determine the relationship between technology addiction and psychological resilience. To determine whether the variables showed a significant difference according to gender, an Independent Samples T-Test was applied.

Table 2 Correlation Analysis Results for the Relationship Between Technology Addiction and Psychological Resilience

	1	2	3	4	5	6
1. TA	1					
2. SNA	.87**	1				
3. IMA	.84**	.68**	1			
4. OGA	.67**	.46**	.36**	1		
5. WA	.85**	.67**	.68**	.39**	1	

6. PR	-.37**	-.35**	-.36**	-.14**	-.34**	1

N = 598, **p < .01

Pearson Product-Moment Correlation Coefficients were used to examine the relationships between technology addiction (social network addiction, instant messaging addiction, online gaming addiction, and website addiction) and psychological resilience. According to the results obtained from the correlation analysis, there were significant negative correlations between technology addiction and psychological resilience (r = -.37, p < .01). Additionally, there were significant negative correlations between psychological resilience and the sub-dimensions of technology addiction: social network addiction (r = -.35, p < .01), instant messaging addiction (r = -.36, p < .01), online gaming addiction (r = -.14, p < .01), and website addiction (r = -.34, p < .01).

Table 3 T-Test Results for Comparing Students' Technology Addiction Based on Gender

	Gender	N	Mean	Sd	T	df	p
TA	Female	425	44.18	14.85	.53	596	.60
	Male	173	43.48	14.42			
SNA	Female	425	12.16	4.62	1.07	596	.29
	Male	173	11.72	4.53			
IMA	Female	425	11.93	4.63	4.10	596	.00
	Male	173	10.39	3.96			
OGA	Female	425	8.52	3.77	-7.17	596	.00
	Male	173	11.46	4.83			
WA	Female	425	11.57	4.78	4.08	596	.00
	Male	173	9.91	4.41			

**$p < .05$

To determine whether there are differences in technology addiction based on gender, an Independent Samples T-Test was utilized. According to the results of the t-test, significant differences were found in the sub-dimensions of technology addiction: instant messaging (p = .00; p < .05), online gaming addiction (p = .00; p < .05), and website addiction (p = .00; p < .05).

Upon examining Table 3, it is observed that female students had higher average scores in instant messaging addiction (M = 11.93, SD = 4.63; t(596) = 4.10, p = .00) compared to male students (M = 10.39, SD = 3.96). Conversely, male students scored higher in online gaming addiction (M = 11.46, SD = 4.83; t(596) = -7.17, p = .00) than female students (M = 8.52, SD = 3.77). Additionally, in terms of website addiction, female students had higher average scores (M = 11.57, SD = 4.78; t(596) = 4.78, p = .00) compared to male students (M = 9.91, SD = 4.41).

Table 4 T-Test Results for the Comparison of Students' Psychological Resilience by Gender

	Gender	N	Ort.	S	T	sd	p
PR	Female	425	18.33	5.40	-4.12	596	.00
	Male	173	20.27	4.71			

**$p < .05$

An Independent Samples T-Test was conducted to determine whether there were differences in psychological resilience between women and men. According to the results of the t-test, as examined in Table 4, there is a significant difference between the scores of men (M = 20.27, SD = 4.71) and women (M = 18.33, SD = 5.40; t(596) = -4.12, p = .00), with men having higher average scores than women.

Discussion and conclusion

Johansson and Götestam (2004) emphasize that the use of technology has become increasingly widespread, especially among adolescents, who are experiencing emotional fluctuations and reshaping their lifestyles during this period. During the Covid-19 pandemic, students continued their education online, leading them to fulfill their social needs through technology. However, excessive technology use can negatively affect an individual's social and psychological life, potentially leading to adverse experiences (Odacı & Çikrıkcı, 2017).

In this study, which examines the technology addiction and psychological resilience of high school students during the Covid-19 period, it was found that there are significant negative relationships between technology addiction and its sub-dimensions (social media addiction, instant messaging addiction, online gaming addiction, and website addiction) and psychological resilience. As individuals' technology addiction increases, their psychological resilience decreases. Similar studies in the literature also indicate negative correlations between internet addiction and psychological resilience (Avcı & Şahin, 2017; Sert-Ağır, 2018). In line with these findings, Keskin (2019) identified negative correlations between digital game addiction and psychological resilience. Aktaş (2018) also observed significant negative relationships between game addiction and psychological resilience in a study examining the relationship between internet and game addiction and psychological resilience.

Excessive use of technology can lead to social isolation, depression, stress, and insomnia in young people (Odacı & Çikrıkcı, 2017). A study conducted with American youth found that individuals who spent a significant amount of time on social media were more prone to depression (Twenge, 2017). Studies in the literature show a positive correlation between technology addiction and depression, with individuals displaying symptoms of depression having higher levels of technology addiction (Wang, Luo, Gao, & Kong, 2012; Öner & Arslantaş, 2018). The interaction between technology addiction and depression, where technology addiction increases the likelihood of depression, may explain its negative impact on psychological resilience (Walther, Morgenstern & Hanewinkel, 2012).

The study found significant differences based on gender in certain sub-dimensions of technology addiction, including instant messaging addiction, online gaming addiction, and website addiction. No significant gender difference was found in the total score for technology addiction or social media addiction. It was found that instant messaging and website addiction were higher among female students, while online gaming addiction was higher among male students. In the literature, Wan and Chiou (2006) found that male students had higher levels of game addiction than female students. Aydın (2017) also found that male students had higher levels of technology and online gaming addiction than female students, while no significant gender differences were found for social media, instant messaging, or website addiction. Horzum (2011) explains that male students' higher game addiction could be due to males experiencing more happiness during gameplay, activating the brain's reward system more than females. The higher levels of website and instant messaging addiction in females can be attributed to their greater tendency toward online shopping and the need for socializing via the internet.

The study also found that during the Covid-19 period, male students had higher levels of psychological resilience than female students. Studies in the literature also show that males tend to have higher psychological resilience (Campbell-Sills et al., 2009; Açıkgöz, 2016; Sezgin, 2016). Similarly, a study by Wang et al. (2020) during the Covid-19 period found that males had higher psychological resilience than females, which they attributed to females being at greater mental health risk. However, there are also studies showing that females have higher psychological

resilience than males (Önder & Gülay, 2008; Gündaş & Koçak, 2015; Kılıç & Alver, 2017; Bozdağ, 2020; Moccia et al., 2020). Graber et al. (2015) suggest that female students may have a higher capacity for adapting to sudden risky situations compared to males. Additionally, Sun and Stewart (2007) argue that females' higher levels of empathy could positively affect their psychological resilience.

This study aims to contribute to future research on the relationship between technology addiction and psychological resilience among high school students during the Covid-19 period. Recommendations for future studies include further exploration of gender differences in technology addiction and resilience, as well as the long-term effects of technology use on students' mental health.

- To increase the validity of the results obtained from the research, data can be collected from larger samples, and analyses can be repeated.
- Concepts that are thought to be related to technology addiction and psychological resilience can be included in the research to fill gaps in the literature.
- In light of the research findings, psychoeducational programs aimed at developing psychological resilience can be prepared for activities conducted in the fields of guidance and psychological counselling.

Acknowledgements

This study was presented by the first author under the supervision of the second author in the 2021 TUBITAK High School Students Research Projects Competition, where it received an award.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical statement

An ethics committee approval for research was obtained from the Giresun Governorship with document number 19526271, dated 22.01.2021, and from the Tokat Governorship with document number 14761436, dated 21.01.2021.

References

Açıkgöz, M. (2016). *Examining the relationship among thepsychological resiliance, humourstyles and happiness level of medicine school students*. (Unpublished master's thesis). Çağ University Institute of Social Sciences, Mersin, Turkey.

Ahuja, S., & Kumari, S. G. (2009). *Impact of extended video viewing on cognitive, affective and behavioral processes in preadolescents*. (Unpublished doctoral dissertation, Thapar University). School of Management and Social Sciences.

Aktaş, B. (2018). *The relationship between internet and digital game addiction and psychological resilience and aggression in secondary school students*. (Unpublished master's thesis). Kafkas University Institute of Health Sciences, Kars, Turkey.

Arısoy, Ö. (2009). Internet addiction and its treatment. *Current Approaches in Psychiatry, 1*(1), 55-67.

Avcı, D. K., & Şahin, H. A. (2017). Relationship between burnout syndrome and internet addiction, and the risk factors in healthcare employees. *Konuralp Medical Journal*, *9*(2), 78-85. http://dx.doi.org/10.18521/ktd.299196

Aydın, F. (2017). *Student views about relating to the problems in the class environment created by technology addiction*. (Unpublished master's thesis). Ankara University Institute of Educational Sciences, Ankara, Turkey.

Bilge, Y., & Bilge, Y. (2020). Investigation of the effects of corona virus pandemic and social isolation on psychological symptoms in terms of psychological resilience and coping styles. *Turkish Journal of Clinical Psychiatry, 23*(1), 38-51. http://dx.doi.org/10.5505/kpd.2020.66934

Bozdağ, F. (2020). *Psychological resilience and acculturation strategies of refugee children*. (Unpublished doctoral dissertation). Hacettepe University Institute of Educational Sciences, Ankara, Turkey.

Campbell-Sills, L., Forde, D. R., & Stein, M. B. (2009). Demographic and childhood environmental predictors of resilience in a community sample. *Journal of psychiatric research*, *43*(12), 1007-1012. https://doi.org/10.1016/j.jpsychires.2009.01.013

Çakın, M., & Akyavuz, E. K. (2020). The Covid-19 process and its reflection on education: An analysis on teachers' opinions. *International Journal of Social Sciences and Education Research, 6*(2), 165-186. https://doi.org/10.24289/ijsser.747901

Doğan, T. (2015). Adaptation of the Brief Resilience Scale into Turkish: A validity and reliability study. *The Journal of Happiness & Well-Being, 3*(1), 93-102.

Doty, B. (2010). The construct of resilience and its application to the context of political violence. *Pursuit-The Journal of Undergraduate Research at the University of Tennessee, 1*(1), 137-154. https://trace.tennessee.edu/pursuit/vol1/iss1/11

Ertemel, A. V., & Aydın, G. (2018). Technology addiction in the digital economy and suggested solutions. *Addicta: The Turkish Journal on Addictions*, 5, 665–690. https://doi.org/10.15805/addicta.2018.5.4.0038

Field, A. (2013). *Discovering Statistics Using IBM SPSS* (4th ed.). London: Sage Publications.

Graber, R., Pichon, F., & Carabine, E. (2015). Psychological resilience. London: Overseas Development Institute. Retrieved: 28.08.2024, https://cdn-odi-production.s3.amazonaws.com/media/documents/9872.pdf

Gündaş, A., & Koçak, R. (2015). The role of self-construals as the predictors of psychological resilience ofhigh school students. *The Journal of International Social Research, 8*(41), 795-802.

Horzum, M. B. (2011). Examining computer game addiction level of primary school students in terms of different variables. *Education and Science*, *36*(159), 56-68.

İnce, M., & Yılmaz, M. (2020). The impact of social media use habits on lonelination of children in adolescent age. *Gümüşhane University e-Journal of Faculty of Communication, 8*(2), 1111-1144. https://doi.org/10.19145/e-gifder.725462

Jin, Z., Zhao, K., Xia, Y., Chen, R., Yu, H., Tamutana, T. T., Sherman, J., Bermeitinger, C., & Baess, P. (2020). Psychological responses to the Coronavirus Disease (COVID-19) outbreak. *China*, *14*, 1-16.

Johansson, A., & Götestam, K. G. (2004). Internet addiction: characteristics of a questionnaire and prevalence in Norwegian youth (12–18 years). *Scandinavian Journal of Psychology*, *45*(3), 223-229. https://doi.org/10.1111/j.1467-9450.2004.00398.x

Jones, J. H., & Salathé, M. (2009). Early assessment of anxiety and behavioral response to novel swine-origin infl uenze A(H1N1). *Plos ONE, 4*, 1-8. https://doi.org/10.1371/journal.pone.0008032

Keskin, A. D. (2019). *Investigation of the effects of the game addiction intervention programme on adolescents' game addiction and game motivation with emotional behavioral problems and their mothers' thoughts*. (Unpublished doctoral dissertation). Ankara University Institute of Health Sciences, Ankara.

Kılıç, Ş. D., & Alver, B. (2017). Analysis on the relationship between the loneliness and psychological resilience levels of undergraduate students in terms of some variables. *International Journal of Education Technology and Scientific Researches*, *2*(3), 116-147.

Kul, A., Demir, R., & Katmer, A. N. (2020). Meaning of life and anxiety as predictors of psychological resilience during the Covid-19 epidemic. *Electronic Turkish Studies, 15*(6), 695-719. http://dx.doi.org/10.7827/TurkishStudies.44419

Moccia, L., Janiri, D., Pepe, M., Dattoli, L., Molinaro, M., De Martin, V., ... & Di Nicola, M. (2020). Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: an early report on the Italian general population. *Brain, Behavior, and Immunity*, *87*, 75-79. https://doi.org/10.1016/j.bbi.2020.04.048

Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior, 16*(1), 13-29. https://doi.org/10.1016/S0747-5632(99)00049-7

Odacı, H., & Çikrıkci, Ö. (2017). Differences in problematic internet use based on depression, anxiety, and stress levels. *Addicta: The Turkish Journal on Addictions*, *4*(1), 41-61. http://dx.doi.org/10.15805/addicta.2017.4.1.0020

Önder, A., & Gülay, H. (2008). Resilience of 8 grade students in relation to various variables. *Buca Faculty of Education Journal*, *23*, 192-197.

Öner, K., & Arslantaş, H. (2018). Internet addiction in high school students, affecting factors and relationship between internet addiction and depression risk. *Jurnal Medical Brasovean, 1*, 38-49.

Republic of Turkey Ministry of Family and Social Policies (2013). *2013 Activity Report*. Ankara: Republic of Turkey Ministry of Family and Social Policies.

Sert-Ağır, M. (2018). A study on psychological resillience, school burnout and internet addiction of adolescents. *Journal of Youth Researches, 6*(16), 5-28.

Sezgin, K. (2016). *Üniversite öğrencilerinin psikolojik sağlamlık ve dindarlık düzeylerinin incelenmesi: Dicle University örneği [Investigation of psychological resilience and religiosity levels of university students (Dicle University example)]*. (Unpublished master's thesis). Dicle University Institute of Educational Sciences, Diyarbakır, Turkey.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194-200. https://doi.org/10.1080/10705500802222972

Sun, J., & Stewart, D. (2007). Age and gender effects on resilience in children and adolescents. *International Journal of Mental Health Promotion*, *9*(4), 16-25. https://doi.org/10.1080/14623730.2007.9721845

Tabachnick, B. G., & Fidell, L. S. (2015). *Using multivariate statistics* (5th ed.). New York: Pearson.

Telli- Yamamoto, S., & Altun, D. (2020). The Coronavirus and the rising of online education. *Journal of University Research, 3*(1), 25-34. https://doi.org/10.32329/uad.711110

Til, A. (2020). Yeni koronavirüs hastalığı (Covıd-19) hakkında bilinmesi gerekenler [What you need to know about the new coronavirus disease (Covid-19)]. *Göller Bölgesi Aylık Ekonomi ve Kültür Dergisi [Lakes Region Monthly Economy and Culture Journal], 8*(85) 53-57.

Tosun, S. (2017). İnfluenza (Grip) Nedir, Ne Değildir? [What is Influenza and What is Not?]. *İzmir Tabip Odası [Izmir Medical Chamber]*. 1-12.

Twenge, J. M. (2017). IGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy--and completely unprepared for adulthood-and what that means for the rest of us. 118-123.

United Nations Türkiye (2020). Covid-19 Affects Women and Men Differently Socially and Economically! Retrieved 16.01.2020, https://turkey.un.org/tr/39770-kovid19-kadin-ve-erkekleri-sosyal-ve-ekonomik-olarak-farkli-etkiliyor

Walther, B., Morgenstern, M., & Hanewinkel, R. (2012). Co-occurrence of addictive behaviours: Personality factors related to substance use, gambling and computer gaming. *European addiction research*, *18*(4), 167-174. https://doi.org/10.1159/000335662

Wan, C. S., & Chiou, W. B. (2006). Psychological motives and online games addiction: Atest of flow theory and humanistic needs theory for taiwanese adolescents. *CyberPsychology & Behavior*, *9*(3), 317-324. https://doi.org/10.1089/cpb.2006.9.317

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic

among the general population in China. *International journal of environmental research and public health*, *17*(1729), 1-25. https://doi.org/10.3390/ijerph17051729

Wang, L., Luo, J., Gao, W., & Kong, J. (2012). The effect of Internet use on adolescents' lifestyles: A national survey. *Computers in Human Behavior*, *28*(6), 2007-2013. http://dx.doi.org/10.1016/j.chb.2012.04.007

Yalçın, S. (2013). *The relationships of primary school teachers' burnout levels to perceived stress, psychological hardiness and academic optimism*. (Unpublished master's thesis). Gazi University Institute of Educational Sciences, Ankara, Turkey.

Zara, A. (2012). *Krizler ve travmalar [Crises and traumas]*. (in *Yaşadıkça Psikolojik Sorunlar ve Başa Çıkma Yolları* [Psychological problems and ways of coping as we live]). İstanbul: İmge Publishing.

Zou, L., Ruan, F., Huang, M., Liang, L., Huang, H., Hong, Z., Yu, J., Kang, M., Song, Y., Xia, J., Guo, Q., Song, T., He, J., Yen, H. L., Peiris, M., & Wu, J. (2020). SARS-CoV-2 viral load in upper respiratory specimens of infected patients. *New England Journal of Medicine, 382*(12), 1177-1179. https://doi.org/10.1056/nejmc2001737