Online Game Addiction Among Turkish Adolescents: The Effect of Internet Parenting Style

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http://dx.doi.org/10.17220/mojet.2019.01.004

ABSTRACT

Parenting styles, which are known to have a significant impact on the development of adolescents, also play an important role in the use of the child's internet and accompanying technologies. One of these effects is the actions and behaviors of the adolescent in the technology-rich environments. In this context, the research was conducted to determine the effect of internet parenting style on online game addiction of adolescents. The study is a descriptive research and was designed as a correlational survey method. The sample group was formed by 1336 adolescents consisting of secondary and high school students. Research findings revealed that parents' internet styles were mostly considered as being laissez-faire and followed by authoritative, authoritarian and permissive parental styles respectively, and that 14.22% of adolescents had high levels of disruptions due to their online game habits and that the difference in gender context was in favor of men. Another finding of the study is that adolescents living in households with a high parental warmth, authoritative and authoritarian internet parenting style had lower levels of online game dependency than in other households with parents in other styles. While the differences between age of adolescents and education level of father and online game addiction were not found significant in the study, the differences between maternal education level, socio-economic level and playing time were turned up as significant.

Keywords: *Online game addiction, internet parenting style, parent-adolescent relationship*

INTRODUCTION

High-tech devices (computers, tablets and smartphones), with the increasing popularity of the internet from day to day, have led digital gaming to become a popular activity, especially among young people. Studies suggest that digital games have certain positive effects on improving spatial visualization abilities (i.e., mentally rotating and manipulating two and three-dimensional objects) (Chisholm, Hickey, Theeuwes, & Kingstone, 2010; Green & Bavelier 2012; Spence & Feng, 2010; Subrahmanyam & Greenfield, 1994; Uttal et al., 2013; Wilms, Petersen, & Vangkilde, 2013), increasing personal and social skills (Calado, Alexandre, & Griffiths, 2014; Willoughby, 2008), helping make friends online (Cole & Griffiths, 2007; Utz, Jonas, & Tonkens, 2012), helping develop social capital (Trepte, Reinecke, & Juechems, 2012; Zhong, 2011), enhancing creativity (Jackson et al., 2012), improving problem-solving skills (Adachi & Willoughby, 2013), improving one's mood (Russoniello, O'Brien, & Parks, 2009) and last but not least, on increasing academic success (Green & Bavelier 2003). However, it is stated in the third section of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) that excessive and uncontrolled use of digital games, which is defined as Internet Gaming Disorder also has some negative effects that are frequently mentioned in a number of studies in literature such as, insomnia (Foti, Eaton, Lowry, & McKnight-Ely, 2011; King et al., 2013; Rehbein, Kleimann, & Mößle, 2010),

attention problems (Chan & Rabinowitz 2006; Gentile, 2009), decreased academic achievement (Anand, 2007; Gentile, 2009; Skoric, Ching Teo, & Neo, 2009), anxiety, depressive symptoms and social phobia (Gentile et al., 2011; Király et al., 2014), impairment of interpersonal relationships (Blais, Craig, Pepler, & Connolly, 2008; Gentile et al., 2011), family conflicts, increase in violence or crime incidence, drowsiness, low self-esteem, lower satisfaction in daily life (Hsu, Wen, & Wu, 2009; Kim et al., 2007; Ko, Yen, Chen, Chen, & Yen, 2005; Pawlikowski & Brand, 2011; Song & Sim, 2003; Wan & Chiou, 2006), loneliness (Lemmens, Valkenburg, & Peter, 2009; Morahan-Martin & Schumacher, 2003), aggression (Anderson et al., 2010; Ferguson, 2007; Lemmens, Valkenburg, & Peter, 2011) and physical health problems (American Psychiatric Association, 2013).

It has been reported in international studies conducted in the context of gaming disorders that the prevalence of internet gaming disorder has changed from 0.6% to 15% (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010; Gentile 2009; Poli & Agrimi 2012; Porter, Starcevic, Berle, & Fenech, 2010; Van Rooij, Schoenmakers, Vermulst, Van den Eijnden, & Van de Mheen, 2011) and that this problem has become a serious public health problem, especially in China, Korea and Taiwan, and measures have been taken nationwide (Dong, Wang, Yang, & Zhou, 2013; Lee & Morgan, 2018; Lin, Ko, & Wu, 2011). On the other hand, in one of the most recent studies conducted by Müller and his colleagues (2015), which covers the 7 European countries, it was determined that the highest prevalence was in Greece (2.5%), followed by Poland with a prevalence of 2.0% and the lowest prevalence was in Spain (0.6%). Although there are a limited number of studies regarding the game addiction and game play disorder in our country (Demirtaş Madran & Ferligül Çakılcı 2014; Gökçearslan & Durakoğlu, 2014; Güllü, Arslan, Dündar, & Murathan 2012; Hazar, Tekkurşun Demir, Namlı, & Türkeli, 2017; Horzum, 2011; Öncel & Tekin, 2015), the number of studies that could reveal the seriousness of the problem is not sufficient enough. In the only national study of the prevalence of game addiction and game play disorder, Irmak (2014) found that the prevalence of digital play addiction was 28.8%, which was a very serious level of adolescent prevalence.

Internet Parenting Style

Studies indicate that the processes of adolescent use of internet and accompanying technologies are affected by many factors and they focus on the fact that parenting style is also one of these factors (Rosen, Cheever, & Carrier 2008; Valcke, Bonte, De Wever, & Rots, 2010).

The internet parenting style, which depicts the parent's child's attitude towards the internet and the technology that comes with it, is the intersection of the dimensions of parental control for internet use and parental warmth for internet use (Figure 1). While parental control for internet use includes guidance for the child's online activities, setting various rules to regulate internet use, and taking measures to prevent inappropriate online activities of the child, parental warmth for internet use comprises of advanced communication with the child during the use of the online environment and support for the child.

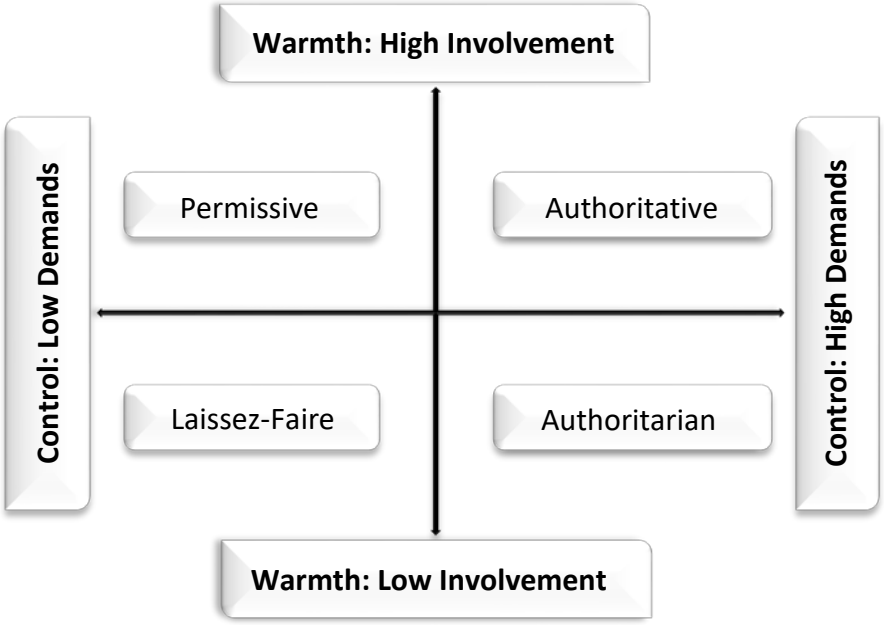

Figure 1. Parenting styles (based on Baumrind, 1991; Maccoby & Martin, 1983)

The four parenting styles that are formed by the intersection of parental control and warmth can be defined as follows:

-Authoritative Parenting Style: Authoritative parents are individuals who listen to their children, communicate in a solution-focused relationship with their children, share their ideas mutually and support their child's special abilities and tendencies (Maccoby, 1992).

-Permissive Parenting Style: Permissive parents are individuals who are not more demanding than their children, who avoid confronting their children and cannot resist their wishes (Darling, 1999).

-Laissez-Faire Parenting Style: These families who tend to give feedback to their child very rarely provide little or no emotional support or guidance for their child. Parents in this style have weak communication with their children and their interactions are very low (Maccoby, 1992).

-Authoritarian Parenting Style: In authoritarian parenting style, which is defined as the intersection of low parental warmth and high parental control, the child is expected to obey strict rules set by parents and not to go beyond these rules (Darling, 1999).

In the studies conducted in the context of internet gaming disorder and parent effect it was determined that adolescents who grow in the following households show signs of internet gaming disorder. Namely, they are the adolescents whose family ties are weak, whose parents are divorced, who are not appreciated and supported by their parents, who cannot establish healthy communication and in conflict with their parents (Agate, Zabriskie, Agate, & Poff, 2009; Cui, Lee, & Bax, 2018; Kim & Kim, 2009; Lee & Morgan, 2018; Lyu, 2017; Xiuqin et al., 2010), whose internet activities are not controlled and who are not informed about the risks of the online environment by their parents (Anandari, 2016; Bonnaire & Phan, 2017; Choo, Sim, Liau, Gentile, & Khoo, 2015; Kim, Jeong, & Zhong, 2010). On the other hand, some studies suggest that adolescents who live in the situations where family communication and compliance are at a good level (Demirtas Zorbaz, Ulas, & Kizildag, 2015; Liau et al., 2015; Wang et al., 2014), who have strong connections with their parents (Choo, et al., 2015) and who are monitored by their parents about the use of internet and digital devices (Bonnaire & Phan, 2017; Choo et al., 2015) are less likely to encounter disruptions due to online game playing.

In our country, although there are some studies that examine online game addiction and its effects

(Demirtaş Mardan & Ferligül Çakılcı 2014; Gökçearslan & Durakoğlu, 2014; Güllü et al., 2012; Hazar et al., 2017; Horzum, 2011; Öncel & Tekin, 2015; Toker & Baturay, 2016), there are very few national studies investigating the relationship between online gaming addiction and parenting style, in the related literature (Demirtas Zorbaz et al., 2015). On the other hand, the fact that the sample group of this national study was composed of primary school students indicates the necessity of new studies conducted on adolescents, because they are the most affected group by online game addiction and it is important to determine how they are affected by these environments and the possible impact of the internet parenting style on adolescents' online game addiction. Similar needs are often expressed in international studies (Bonnaire & Phan, 2017; Cui et al., 2018; Demirtas Zorbaz et al., 2015; Huanhuan & Su, 2013; Kim et al., 2010; Kyunghee & Kisook, 2015; Lee & Morgan, 2018; Smith, Gradisar & King, 2015; Peeters, Koning, & van den Eijnden, 2018).

The main objective of this research is to determine the relationship between online game addiction of adolescents and internet parenting style, gender, age, socio-economic level, parental education level and the duration of daily online gaming, which would be effective on this addiction. For this purpose, the study sought to answer the following research questions:

1. What is the ranking of internet parenting styles preferred by their parents according to the perceptions of adolescents?

2. What are online game addiction levels of adolescents?

3. What is the effect of different internet parenting styles on adolescent online game addiction?

4. Is there a relationship between online game addiction and characteristics of family or parent (education level, monthly income level), and child characteristics (age, gender, frequency of online gaming, etc.)?

RESEARCH METHOD

Research Model

The study is a descriptive research and was designed as a correlational survey method. Groups are formed on the basis on one of the variables, and analysis is conducted to see whether or not there is a difference based on the other variable (Frankel & Wallen, 1996; Karasar, 2012). According to Creswell (2012), investigators use the correlational statistics to describe and measure the degree or association between two or more variables or sets of scores in correlational research. These researches have been elaborated into more complex relationships among variables (Creswell, 2014).

Participants

The study sample group consisted of 1448 students studying in seven different secondary schools and in fourteen different high schools, all of which were selected based on a simple random sampling method, from schools among Edirne city center. The questionnaires of 112 students who completed the data collection tool improperly were excluded from the survey. The study was conducted on data obtained from 1336 students. In Well-Being Index for Provinces that was first published in 2016, and that covers 11 sub-dimensions and 41 indicators, Edirne is ranked 10th in the education sub-factor among the provinces in Turkey (Turkish Statistical Institute, 2016) and it shares 18th position in the human development index which consists of health, education and income level factors (The Economic Policy Research Foundation of Turkey, 2016). In other words, related reports reveal that Edirne is a province with a high quality of life and human development index. Demographic information on the study group in which the research data were obtained is presented in Table 1.

Table 1. Demographic characteristics of the students

Sex	N	(%)
Girl	633	47.4
Boy	703	52.6

Age	N	(%)
13-14	156	11.7
15-16	795	59.5
17 or older	385	28.8

Adolescents' Educational Level	N	(%)
Middle School	170	12.7
High School	1166	87.3

Fathers' Educational Level	N	(%)
Elementary School	284	21.3
Middle School	284	21.3
High School	470	35.2
Bachelor Degree	247	18.5
> Bachelor Degree	51	3.8

Mothers' Educational Level	N	(%)
Elementary School	418	31.3
Middle School	316	23.7
High School	448	33.5
Bachelor Degree	136	10.2
> Bachelor Degree	18	1.3

Type of Game Played	N	(%)
Racing/Sport Games	679	50.8
Action/Adventure Games	656	49.1
Strategy Games	488	36.5
Role-playing Games	435	32.6
Simulation Games	376	28.1
Educational Games	331	24.8
Fighting Games	321	24.0

Frequency of Online Game Play	N	(%)
Less Than Once per Week	393	29.4
Once per Week	206	15.4
Once Every 2 or 3 Days	267	20.0
Once or Twice a Day	202	15.1
Multiple Times a Day	120	9.0
Always	148	11.1

Daily online game playtime	N	(%)
30 min. or less	501	37.5
30 min. - 1 h	280	21.0
1-2 h	231	17.3
2-3 h	176	13.2
4 h or more	148	11.1

Monthly Income	N	(%)
1300-2200 TL (*1 USD=4.80 TL)	490	36.7
2201-3140 TL	398	29.8
3141-4470 TL	286	21.4
4471 TL and above	162	12.1

Data Collection Tool

The internet parental style scale, online game addiction scale and personal information questionnaire were used to collect data in the study.

The Internet Parental Style Scale: The Internet Parental Style Scale, was adapted by Ayas and Horzum (2013), consisting of 25 items and two factors with a Likert type of 5 was used in the research. The "parental control" factor of the scale consists of 11 items such as "My parents watch when I surfs on the Internet", "My family controls what I do on the Internet." and the "parental warmth" factor consists of 14 items such as "We define Internet rules together with my parents.", "My parents speak to me about the harms of the internet." The scale is used in two different ways. In the first one, the total score is taken on the parental control and warmth dimensions of the scale. Participants can score between 11 and 55 on the parental control dimension of the scale and between 14 and 70 on the dimension of parental warmth. Transactions are carried out on two factors based on the total points received. In the other usage of the scale, 1 to 5 points are obtained from each item in the dimensions of parental control and parental warmth. Points 1-2 are considered low, and points 3-5 are considered high. A 2x2 structure is formed by the obtained values, which includes low/high parental control and low/high parental warmth. In the study, assessments were made with

both usage types of the scale. Cronbach's alpha reliability coefficient is found to be .94 for the scale in general, .86 for the parental control factor and .88 for the parental warmth factor (Ayas & Horzum, 2013). In the present study, Cronbach's alpha reliability coefficient was found to be .90 for the scale in general, .89 for the parental control factor and .88 for the parental warmth factor. In Fig. 1, the determination of the internet parenting style using parental control and warmth dimensions is demonstrated visually.

Online Game Addiction Scale: In the study, an Online Game Addiction Scale developed by Kaya (2013) consisting of 21 items with 3 factors with a Likert type of 5 was used. The increase in the obtained score indicates that the individual is a problematic online player.

The *Troubles* factor of the scale consists of 9 items. This factor includes items such as "My sleeping was broken because I played online games", "My relations with my friends were disrupted because I played online games", and "I sometimes happened to postpone my work in order to achieve my goals (point, level, item, etc.) in the online games". (At least 9 points - up to 45 points can be taken from these items; if the participant's score is between 9-18, it means "There is No Trouble", a score between 19-27 means "Low-Level Troubles", a score between 28-36 means "Medium-Level Troubles" and a score between 37-45 can be interpreted as "High- Level Troubles").

Another factor of the Online Game Addiction Scale is the *Success* factor, which consists of 8 items. This factor includes items such as "I feel happy when I jump level in online games" and "I get angry when my opponent beats me in online games". (At least 8 points - up to 40 points can be taken from these items; if the participant's score is between 8-16, it means, "He/she Does not Experience a Sense of Success", a score between 17-24 means "A Sense of Low-Level Success", a score between 25-32 means "A Sense of Moderate Success", and a score between 33-40 can be interpreted as "A Sense of High-Level Success").

The *Economic Profit* factor consists of 4 items. This factor includes items such as "I've made money by selling the character I've developed in online games" and "Online games are a profit gate for me". (At least 4 points - maximum 20 points can be taken from these items; a score between 4-8 means "No Economic Profit", a score between 9-12 indicates "Low Economic Profit", a score between 13-16 means "Medium Economic Profit" and a score between 17-20 is a sign of "High Economic Profit".

Cronbach Alpha reliability coefficient for the overall scale was determined as 0.94, Cronbach Alpha internal consistency coefficient of the Troubles factor was 0.90, Cronbach Alpha internal consistency coefficient of the Success factor, the second of the factors was 0.88, and Cronbach Alpha internal consistency coefficient for the Economic Profit factor, the third of the factors, was 0.83 (Kaya, 2013). In this study, Cronbach Alpha reliability coefficient for the overall scale was determined as 0.90 Cronbach Alpha internal consistency coefficient of the Troubles factor was 0.87, Cronbach Alpha internal consistency coefficient of the Success factor was 0.85, and Cronbach Alpha internal consistency coefficient of the Economic Profit factor was 0.87.

Personal Information Form: The personal information form drawn up by the researcher included a set of questions prepared to obtain certain demographic information such as gender, age, education level of mother and father, socio-economic level, types of online games played and duration of daily online gaming.

Collection of Data

The research was conducted in person, and the students were informed at the outset about the subject of the research and data-collection tools. They were reminded that participation in the research was on a volunteer basis. The scale was answered in approximately 25 minutes. Prior to the analysis of the data, the accuracy of the data input and the regularity of the distribution of the variables were tested. For this purpose, it was calculated whether the scores of participants were extreme values and 57 students were determined with extreme values (outliers - with using box plot diagram and Mahalanobis distance). In addition, the data of 55 students who did not fill the data collection tools in a suitable way were excluded from the analysis and the research sample consisted of 1336 students.

Data Analysis

The Kolmogorov-Smirnov Test was performed to test whether the data were normally distributed before the analysis (VIF<2; CI<7.5; TV>.90), and the test result was found to be p>.05 for the variables. Discriminant analysis, descriptive statistics, t-test and one-factor analysis of variance (ANOVA) were used to evaluate the data that were found to have normal distribution. Pearson correlation coefficient was used to determine the relationship between the scales and multiple regression analysis was applied. The significance level in comparisons was accepted as 0.05.

FINDINGS

Internet Parenting Styles Preferred by Parents

In the study, discriminant analysis was used to test the validity of the classification conducted by the internet parental style scale. One of the purposes of using discriminant analysis is to decide which parameter group the data will fall under (Kalayci, 2014, p.335). The results of the discriminant analysis on the accuracy of the internet parenting style classification are given in Table 2.

Table 2. Internet parenting style classification-discriminant analysis

		Predicted group membership				
Internet parenting style		**Laissez-faire**	**Authoritarian**	**Permissive**	**Authoritative**	**Total**
Original Count	Laissez-faire	676	33	0	0	709
	Authoritarian	0	279	0	1	280
	Permissive	1	0	38	9	48
	Authoritative	0	16	0	283	299
Original %	Laissez-faire	95.3	4.7	0	0	100
	Authoritarian	0	99.6	0	.4	100
	Permissive	2.1	0	79.2	18.8	100
	Authoritative	0	5.4	0	94.6	100

*Rate of people accurately classified in the group to which they belonged was 95.5%.

When Table 2 is examined, it is found that the assignment probability of the discriminant function, used in determining the styles of the parents of the participating adolescents to the internet use, towards the groups in which those styles are classified in scales is 95.5%. The findings presented in Table 2 show that 709 of the adolescents considered their family's internet parenting style to be laissez-faire and 280 considered it to be authoritarian. Whereas 48 adolescents stated that the internet parenting style in their parents was permissive, 299 adolescents stated that their family adopted the authoritative internet parenting style.

Online Game Addiction

Descriptive statistics on the averages of adolescents obtained from online game addiction scale are presented in Table 3. The findings indicate that 14.22% of adolescents are faced with high negative effects, such as lack of sleep, malnutrition, problems in social relations and neglecting responsibilities (considering items found within the scale) due to their online game habits, while 30.46% of them show that this negative effect is moderate. The percentage of adolescents who stated that online games had a low impact on their lives was found to be 32.41%. In addition, the research revealed that adolescents have low levels of success in games ($\bar{X}$=23.65) due to their online gaming habits, and that they have low levels of economic profit by playing online games ($\bar{X}$=9.14).

Table 3. Descriptive Statistics for Online Game Addiction

Variable	N	No Effect (n)	Low (n)	Mid-Level (n)	High (n)	i	$\bar{X}$	$\bar{X}$/i	Sd
Troubles	1336	294 (22.00%)	461 (34.51%)	266 (19.91%)	315 (23.58%)	9	28.03	3.14	9.44
Success	1336	377 (28.22%)	312 (23.35%)	369 (27.62%)	278 (20.81%)	8	23.65	2.96	9.78
Economic Profit	1336	766 (57.33%)	206 (15.42%)	179 (13.40%)	185 (13.85%)	4	9.14	2.29	5.35
Online Game Addiction Scale	1336	696 (22.91%)	443 (32.41%)	407 (30.46%)	190 (14.22%)	21	60.83	2.90	20.88

i= number of items

Table 4 shows that there is a significant difference between gender and scores obtained from the general and all sub factors of the online game addiction scale ($t_{(1334)}$= 13.91, p<.05). The average score of male students ($\bar{X}$=67.88) was higher than the average of female students ($\bar{X}$=52.99). When the averages obtained are evaluated on the gender basis, it is revealed that playing online games had a moderate negative impact on the life of male adolescents and that this reflection was low in female adolescents. The calculated η^2 value for the gender variable is 0.36. According to this, 36% of the variance observed in the scores of online addictions game addiction scale can be said to be gender-dependent. In order to determine the effect sizes of statistically significant diffrences, Cohen's d test (Cohen, 1988) was used and d value of 0.76 has been found. This result shows that the difference between the average scores of the online game addiction scale for male and female adolescents is 0.76 standard deviation. In the examination conducted on the basis of sub-factors, it was observed that males experienced troubles at the medium level and girls experienced low level of troubles due to the habit of playing online games. Similarly, in the examination conducted on the basis of success sub-factor male adolescents appeared to be moderately successful in online games and girls had low levels of success. On the other hand, it was revealed that male adolescents have achieved a low level of economic profit from online games, while girls do not have any economic profit.

Table 4. Online Game Addiction by Gender – Independent Samples t-Test Results

Variable	Group	N	$\bar{X}$	SD	df	t	p	η^2	Cohen's d
Troubles	Girls	633	25.46	9.08	1334	-9.76	.001	-0.26	-0.53
	Boys	703	30.34	9.17					
Success	Girls	633	20.51	9.88	1334	-11.69	.001	-0.30	-0.64
	Boys	703	26.47	8.79					
Economic Profit	Girls	633	7.04	4.54	1334	-14.71	.001	-0.37	-0.81
	Boys	703	11.04	5.32					
Online Game Addiction Scale	Girls	633	52.99	20.07	1334	-13.91	.001	-0.36	-0.76
	Boys	703	67.88	19.00					

In Table 5, it is seen that there is a significant difference between the mean scores of the adolescents' online game addiction and the average scores they obtained in the internet parenting style scale ($F_{(3-1332)}$=17.41, p<.05).

Table 5. Online Game Addiction by Internet Parenting Style – ANOVA Results

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	η^2	Sig. Dif.
Troubles	Between Groups	6230.70	3	2076.90	24.53	.001	0.05	1-4, 1-3
	Within Groups	112799.39	1332	84.68				
	Total	119030.08	1335					
Success	Between Groups	6072.32	3	2024.11	22.16	.001	0.05	1-4
	Within Groups	121655.21	1332	91.33				
	Total	127727.54	1335					
Economic Profit	Between Groups	2298.98	3	766.33	28.44	.001	0.06	1-4, 1-3
	Within Groups	35896.14	1332	26.95				
	Total	38195.12	1335					
Online Game Addiction Scale	Between Groups	21955.00	3	7318.33	17.41	.001	0.04	1-3, 1-4
	Within Groups	559936.72	1332	420.37				2-3, 2-4
	Total	581891.71	1335					

1: Laissez-faire 2: Permissive 3: Authoritarian 4: Authoritative

Scheffe test is a rigid (i.e. low fault tolerant) test (Morgan, Leech, Gloeckner, & Barret, 2004, p.151). Under the lifht of this information Scheffe test has been chosen in order to amount for the difference between group sample sizes in tihs scenairo. According to the Scheffe test results, the online game addiction score average of the adolescents who evaluate their parents' internet style as laissez-faire ($\bar{X}$=72.29) was higher than both the online game addiction score average of the adolescents evaluating their parents' internet style as authoritarian ($\bar{X}$=52.60) and the online game addiction score average of the adolescents who evaluate their parents' internet style as authoritative ($\bar{X}$=49.09). Similarly, the online game addiction score average of adolescents who consider their parents' internet style as permissive ($\bar{X}$=68.69) was found significantly higher than both the online game addiction score average of adolescents who consider their parents' internet style as authoritarian ($\bar{X}$=52.60) and the online game addiction score average of adolescents who consider their parents' internet style as authoritative ($\bar{X}$=49.09).

Findings presented in Table 6 show that there is no significant difference between the average online game addiction scores of adolescents and their age level ($F_{(2-1333)}$=1.06, p>.05).

Table 6. Online Game Addiction by Age Category – ANOVA Results

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p
Troubles	Between Groups	442.79	2	221.40	2.49	.083
	Within Groups	118587.29	1333	88.96		
	Total	119030.08	1335			
Success	Between Groups	502.44	2	251.22	2.63	.072
	Within Groups	127225.10	1333	95.44		
	Total	127727.54	1335			
Economic Profit	Between Groups	132.47	2	66.24	2.32	.099
	Within Groups	38062.65	1333	28.55		
	Total	38195.12	1335			
Online Game Addiction Scale	Between Groups	925.63	2	462.81	1.06	.346
	Within Groups	580966.09	1333	435.83		
	Total	581891.71	1335			

1: 13-14 2: 15-16 3: 17 or older

While there was no significant difference between education level of father and adolescents' online game addiction scores ($F_{(4-1331)}$=.31, p>.05), the difference between education level of mother and scores obtained on the online game addiction scale ($F_{(4-1331)}$=4.73, p<.05) was found to be significant (Table 7).

Table 7. Online Game Addiction by Mother's Level of Education – ANOVA Results

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Cohen's *f*	Sig. Dif.
Troubles	Between Groups	2115.06	4	528.76	6.02	.001	0.14	1-4,1-5,
	Within Groups	116915.03	1331	87.80				2-4,2-5
	Total	119030.08	1335					3-4,3-5
Success	Between Groups	678.83	4	169.71	1.78	.131	0.10	
	Within Groups	127048.71	1331	95.45				
	Total	127727.54	1335					
Economic Profit	Between Groups	410.42	4	102.61	3.61	.006	0.10	1-4,1-5,
	Within Groups	37784.70	1331	28.39				2-4,2-5
	Total	38195.12	1335					3-4,3-5
Online Game Addiction Scale	Between Groups	8153.89	4	2038.47	4.73	.001	0.10	1-4,1-5,
	Within Groups	573737.82	1331	431.06				2-4,2-5
	Total	581891.71	1335					3-4,3-5

1: Elementary School 2: Middle School 3: High School 4: Bachelor's Degree 5: > Bachelor's Degree

According to the results of the Scheffe test, the online game addiction score average of adolescents whose mothers have undergraduate and above level of education was significantly lower in sub-factors other than the scale success factor and in the scale overall compared to other educational levels.

In Table 8, it is seen that there is a significant difference between the average score of online game addiction of adolescents and the income level of their families ($F_{(3\text{-}1332)}$=10.44, p<.05).

Table 8. Online Game Addiction by Family Income Level – ANOVA Results

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Cohen's *f*	Sig. Dif.
Troubles	Between Groups	1203.18	3	401.06	4.53	.001	0.14	4-1,
	Within Groups	117826.91	1332	88.46				4-2, 4-3
	Total	119030.08	1335					
Success	Between Groups	3130.49	3	1043.50	11.16	.002	0.10	4-1,
	Within Groups	124597.05	1332	93.54				4-2, 4-3
	Total	127727.54	1335					
Economic Profit	Between Groups	691.72	3	230.57	8.19	.002	0.10	4-1,
	Within Groups	37503.40	1332	28.16				4-2, 4-3
	Total	38195.12	1335					
Online Game Addiction Scale	Between Groups	13363.52	3	4454.51	10.44	.002	0.10	4-1,
	Within Groups	568528.19	1332	426.82				4-2, 4-3
	Total	581891.71	1335					

1: 1.300-2.200 TL 2: 2.201-3.140 TL 3: 3.141-4.470 TL 4: 4.471 TL and above

The Scheffe test, conducted to determine the groups in which monthly income of families caused differences, showed that the online game addiction scale score average of adolescents living in households with a monthly income of TL 4.471 and above was significantly higher than the overall scale and in all sub-factors compared to other levels of income.

Table 9 shows a significant difference between the average scores obtained from the overall and sub-factors of the online game addiction scale and the average daily online game play time ($F_{(4\text{-}1331)}$=54.94, p<.05). The calculated Cohen's *f* value for the online game playing time variable is 0.35.

Table 9. Online Game Addiction by Average Time Spent Daily Playing Games – ANOVA Results

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Cohen's *f*	Sig. Dif.
Troubles	Between Groups	12919.89	4	3229.97	40.52	.001	0.35	5-4,5-3, 5-2,5-1
	Within Groups	106110.19	1331	79.72				
	Total	119030.08	1335					
Success	Between Groups	11613.91	4	2903.48	33.28	.001	0.31	5-4,5-3, 5-2,5-1
	Within Groups	116113.63	1331	87.24				
	Total	127727.54	1335					
Economic Profit	Between Groups	4473.13	4	1118.28	44.14	.001	0.37	5-4,5-3, 5-2,5-1
	Within Groups	33721.99	1331	25.34				
	Total	38195.12	1335					
Online Game Addiction Scale	Between Groups	82454.58	4	20613.64	54.94	.001	0.35	5-4,5-3, 5-2,5-1
	Within Groups	499437.14	1331	375.24				
	Total	581891.71	1335					

1: 30 min. or less 2: 30 min. - 1 h 3: 1-2 h 4: 2-3 h 5: 4 h or more

According to the results of the Scheffe test, the online game addiction scale and its subscale score averages of the adolescents who played online games for 4 hours or more per day were significantly higher than the average scores of the other time periods.

The Relationship Between Online Game Addiction and Internet Parenting Style

Table 10 shows that there is a negative and moderate (r=-.45; p<.01) relationship between the parental warmth which is a sub-factor of internet parenting and the online game addiction according to the findings obtained from the correlation analysis. On the other hand, there is a negative and low-level relationship between parental control and online game addiction (r=-.31; p<.01).

Table 10. Correlation Between Internet Parenting Attitude and Online Game Addiction

	Parental warmth	Parental control	Online Game Addiction
Parental warmth	-	.705**	-.452**
Parental control	.705**	-	-.309**
Online Game Addiction	-.452**	-.309**	-

** Correlation is significant at .01 level.

Through multiple regression analysis the study also examined whether parental warmth and parental control were variables that predicted online game addiction. The findings presented in Table 11 show that parental warmth is a variable that predicts online game addiction and accounts for 21% (R=.453, R^2=.205, $F_{(3,1333)}$=171.63, p<.01) of the variance related to online game addiction.

Table 11. Multiple Regression Analysis for Variables Predicting Online Game Addiction

Dependent Variable	*R*	R^2	*Adjusted* R^2	*Standard Error*
Model 1	.453	.205	.204	18.14

p<.01, Dependent Variable: Online Game Addiction, Independent variable: Parental warmth - Parental control

The negative beta value for parental warmth in the findings presented in Table 12 shows that the existing relationship with the online game addiction is negative and meaningful. Findings revealed that parental control was not a meaningful predictor.

Table 12. Estimated Model Coefficients for Multiple Regression Analysis of Parental Warmth Predicting Online Game Addiction

Dependent Variable	*Beta*	*t*	*Sig.*
Parental warmth	-.465	-13.523	.000
Parental control	.019	.542	.588

p<.01

DISCUSSION AND CONCLUSION

In this study, which examined the impacts of the internet parenting style on online game addiction, adolescents considered their parents' internet style mostly laissez-faire. Authoritative and authoritarian styles followed this style respectively. The permissive parental style was least indicated style by adolescents. In studies conducted in the context of the internet parenting, there have been results that do not overlap with each other for the parenting styles. In some of these studies, authoritarian parenting style is the least specified style by the participants (Özgür, 2016; Rosen et al., 2008; Valcke et al., 2010) while in some studies laissez-faire parenting style is the least specified style (Horzum & Bektas, 2014; Lou et al., 2010). In the emergence of the difference between the studies in the related literature, it is thought that samples may have different demographic characteristics or parents having different cultural dynamics may have an effect on it. As a matter of fact, Kagitcibasi (1996, p. 97) states that parent and child relationships in nuclear families in Turkish societies, where traditional values are heavy, occur in a circle of extreme love and control, in contrast to the balanced love and tolerance in Western societies. In this context, it is thought that this output of research reveals that this excessive affection in the parent-child relationship leads to a more tolerant attitude towards the child and hence to be considered a permissive or even laissez-faire by the child.

Another finding of the study revealed that 14.22% of the adolescents experienced high levels of disruption due to their online game habits. In another study conducted by Irmak (2014), it was found that the prevalence of adolescents showing game addiction was 28.80%, which is a very serious level. In another study conducted by Müller and his colleagues (2015), covering 7 European countries, game addiction was determined to be 2.50% at most. The use of many different measurement tools to determine the adverse effects of online game addiction or digital game involvement on the participant's life is thought to be effective in generating this difference between studies in the literature. As a matter of fact, Kuss and Griffiths (2012) emphasize that in order to be able to evaluate the findings related to game addiction more accurately, it is necessary to increase their validity by using existing measurement instruments instead of using different measurement instruments or developing new measurement instruments.

In the gender-based evaluation of online game addiction, compared to girls, male adolescents are more likely to encounter troubles caused by online gaming, to have a higher sense of success and, at least, to earn from those games. This finding is similar to that of a number of studies in the literature suggesting that boys play more digital games than girls and therefore face more negative effects (Çakır, Ayas, & Horzum, 2011; Demirtas Zorbaz et al., 2015; Gentile et al., 2011; Gökçearslan & Durakoğlu, 2014; Güllü et al., 2012; Hazar et al., 2017; Horzum, 2011; Kweon & Park 2012; Kim & Kim, 2009; Müller et al., 2015; Rehbein et al., 2010; Toker & Baturay, 2016; Vadlin, Åslund, Hellström, & Nilsson, 2016). It is thought that the socialization of gender has an important effect in the emergence of this finding. Because of the gender role, the fact that more rules, supervision and direction are introduced for the protection of women, while male gender, characterized by stronger, brave and independent features retained in the foreground and less restrictive (Suğur, 2006, p. 3) and the general belief that technological efforts are male-specific jobs (Akça & Kaya, 2016) are effective in the emergence of this finding. On the other hand, it is possible to find out studies indicating that there is no meaningful difference in gender context regarding internet game addiction (Demirtaş Madran & Ferligül Çakılcı 2014, Öncel & Tekin, 2015; Rehbein & Mößle, 2013). It is thought that the difference between the researches in the literature can be caused by the demographic characteristics of the sample groups and the differences in the measurement tools used.

Another finding of the study is that adolescents living in households whose parental internet style is considered as laissez-faire and permissive, have a higher level of online game addiction than the children of

parents with authoritative and authoritarian parenting style. This finding also overlaps with the finding that parental warmth is inversely and moderately correlated with online game addiction and that 21% of the variance related to online game addiction can be explained by parental warmth. In fact, the studies in the literature (Anandari, 2016; Bonnaire & Phan, 2017; Choo et al., 2015; Kim et al., 2010; Kim & Kim, 2009; Lee & Morgan, 2018; Liau et al., 2015; Lim & Lee, 2002; Toker & Baturay, 2016; Wang et al., 2014; Xiuqin et al., 2010) which indicate that adolescents who are not respected or supported by family members or who are not sufficiently interested in their families show more symptoms of game addiction than their peers, support the findings of the study.

Another finding of the research is that the difference between age of adolescents and the failures they experience is not significant. In a similar study conducted by Müller and his colleagues (2015), which is parallel to the finding of this study, it was found that there was no significant difference between the ages of adolescents aged 14 -17 and the online the game addiction. On the other hand, in studies conducted with different age groups (Demirtas Zorbaz et al., 2015; Gentile et al., 2011; Rehbein et al., 2010), there was no correlation between age variation and game addiction.

Another finding of the study revealed that the online game addiction score average of adolescents with mothers who have education at the undergraduate level and above was lower than that of their peers with mothers who have lower education level. In other words, as the educational level of the mother decreases, it can be said that the online game addiction tends to increase. On the other hand, this difference was not observed in the context of the education level of the father. While these findings in the research are similar to those of some studies in the literature (Erboy & Akar Vural, 2010; Müller et al., 2015; Toker & Baturay, 2016), some other studies indicate that there is no significant difference between parents' education level and game addiction (Demirtas Zorbaz et al., 2015; Şahin & Tuğrul, 2012; Wang et al., 2014). On the other hand, in another research, it was found that the increase in maternal education level also increases the level of game addiction (Gökçearslan & Durakoğlu, 2014). It is thought that, the significant difference in this finding is only in favor of the level of maternal education may be caused by the fact that fathers are working at a higher rate in our country compared to mothers and therefore they are less able to monitor and control the technology-based activities of child less than mothers. On the other hand, this finding may point out that the increasing level of mother education increases the probability of computer literacy and therefore it may have an effect of monitoring and intervening children's computer activities more consciously. However, in order to evaluate this finding more accurately, there is a need for holistic studies in which the level of computer literacy and the working rates of mothers who have education at the undergraduate level and above are examined.

Another finding of the study is that there is a significant difference between the online game addiction and the level of family income of adolescents, in other words, the higher the socio-economic level, the greater the probability of online game addiction. This finding is similar to the results found in the literature review (Griffiths, Kuss, & King, 2012; Kweon & Park, 2012; Mentzoni et al., 2011; Oggins & Sammis, 2012; Rehbein et al., 2010; Thomas & Martin, 2010; Toker & Baturay, 2016). On the other hand, there are also studies in the related literature showing that the socio-economic level does not affect digital game addiction (Kim & Kim, 2009). It is thought that having the material resources necessary both to possess the technological devices and to purchase digital games is an effective factor in this finding. It is thought that the difference between the researches in the literature can be derived from the means of measurement and cultural and demographic characteristics.

Another finding of the study revealed that adolescents playing online for four hours or more a day experienced more disruptions due to online gaming than those who play online for less time. The literature review (Gentile et al., 2011; Gökçearslan & Durakoğlu, 2014; Haagsma, Pieterse, & Peters, 2012; Hussain, Griffiths, & Baguley, 2012; Lee & Morgan, 2018; Wang et al., 2014; Yoon, Kim, & Park, 2014) which indicates that there is a meaningful relationship between game play time and game addiction supports this finding. However, the findings of the study revealed that the percentage of adolescents who experienced some disruptions in their lives although they played online games less than four hours a day (14.2%) was higher than the percentage of adolescents who said they played games four or more hours a day (11.1%). When these two findings are evaluated together, it can be interpreted that online game-related failures are not one-to-one related to the time spent in the game.

As a result, in the study adolescents considered their parents' internet style mostly laissez-faire and authoritative, authoritarian and permissive parental styles followed it, respectively. It was also found that 14.22% of the adolescents had a high level of disruption due to their online game habits and male teenagers had a higher level of online game addiction. It has been determined that adolescents living in households with high parental warmth had a lower level of online game addiction and that adolescents had fewer problems due to game addiction as their maternal education level increases. On the other hand, it was determined that the increase in the socio-economic level of the family and the duration of play led to an increase in the tendency of adolescents to engage in online gaming.

The research has some limitations. The most important limitation of the research is that all analyses were obtained from a single data group. Therefore, the findings obtained in this study need to be verified by mutual evaluation of the findings of studies carried out with the participation of a larger number of adolescents residing in different regions of the country.

Suggestions

- One of the most important tasks of parents in the age of information and communication is to protect their children from the negative effects of the internet as well as to guide their children to the useful resources of the internet. In this context, it is necessary for parents to communicate well with their children and to inform and guide them about the risks of the online environment. For this purpose, there is a need to make publications to raise awareness of the families regarding the process of the use of internet and the accompanying technologies by their children through written and visual media and internet resources.
- Psychological counseling services can be provided to parents and adolescents through online media to avoid the negative effects of digital games.
- In this research, the parents' internet style was evaluated from the perspective of adolescents. In the new studies, in addition to the perception of parental internet style, there is a need to investigate the perception of the parents themselves and their opinions about their children's internet activities in a holistic way.
- In order to reveal cultural differences, there is a need for research that also makes cross-country comparisons
- In order to increase the awareness level of adolescents, meetings and seminars on the causes and consequences of online game addiction can be organized in schools.

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