# DIGITAL GAME ADDICTION LEVEL OF HIGH SCHOOL STUDENTS IN TURKEY

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Original scientific paper

***Abstract***
*The aim of this study was to investigate digital game addiction level of the high school students according to sports participation, gender, regular sports participation, a difficulty of leisure time evaluation and weekly leisure time. Randomly chosen 1459 students from 7 regions of Turkey (681, %46,7 female and 778, %53,3 male) voluntarily participated in the study. In the study, "Digital Game Addiction Scale" was used which is developed by Lemmens, Valkenburg, and Peter (2009) and adapted to Turkish by Irmak and Erdogan (2015). The Turkish version of the scale consists of one factor and seven items anchored with a five Likert type scale. The data obtained in the study were analyzed by SPSS 22 packet program. The margin of error in the study was taken as p<0.05. The Cronbach alpha value of the study found as 0,82.As a result, it found that a statistically significant difference is between male and female students regarding digital game addiction and gender variables of the students who participated in the study (p=,00). It has found that male students have a higher digital game addiction than female students. It also observed that a significant difference is between sporting status and digital game addiction (p=,02). It determined that the level of digital game dependency of the students who do not play sports is higher than those who play sports. Moreover, it observed that a statistically significant difference is between the difficulty of evaluating students' leisure time and the time spent leisure time and digital game dependency (p=,00). It concluded that the level of the students who are high in leisure time and the students who have difficulty in evaluating their leisure time are high in digital game addictive levels.*

***Key words****: digital game, addiction, high school, student, sport*

## Introduction

Time is a process that develops beyond our control and follows successive events from the past to present and continues uninterrupted towards the future (Smith & Hyrym, 1998). We cannot buy, accumulate, borrow, or change it in any way. The only thing that we can do is to evaluate it in the best way. Time is democratic to everyone, and it is an invaluable source of mercy flowing at a certain rhythm (Scoot, 1995). According to Ahrends (2017), not well managed time can be the cause of losing control. That is why time should use in a very efficient and effective way.

As a result of industrialization, with the rise of technology society's welfare level increased at the same time free time also expanded and became a big problem for almost all people who cannot use it properly. According to Papec (2015) recent research has registered a high reduction rate of physical activity levels in all age groups. One of the most significant barriers to use the leisure time is to become addicted to the digital games. That is why recently game addiction has become a topic of increasing research interest.

Digital gaming tends to attract increasing amounts of time, money, and energy from the game players (Jeong et al., 2017). An adverse outcome of digital games is the game addiction, which refers to the excessive or compulsive use of computer games that results in negative consequences and unhealthy daily life behaviors (Jeong & Kim, 2011).

Recently a significant increase in the number of empirical studies examining various aspects of problematic video game play and video game addiction (Griffiths et al., 2012). The games that adolescents and young people used to play in the playgrounds and on the streets have replaced with digital games which are playing in front of the computer on the internet or in game arcades. This changing culture has mainly brought up the concept of "digital game addiction" which is a condition that stems from the steadily growing passion for digital games and their excessive and uncontrolled usage among adolescents and young people (Yalcin Irmak & Erdogan, 2015a, 2015b). There are few studies shown that majority people have experience in playing digital games. Digital games (video games or computer games) are positively accepted by children and teenagers (Zin et al., 2009). College students also play lots of video games. The Cooperative Institutional Research Program (1998,

1999) found that in 1998, 13.3% of men entering college played at least six hr per week as high school seniors (Anderson & Bushman, 2001). For instance, in the United States, Video game industry approaches yearly revenues of 15 billion, with the game playing population falls between the ages of 10-34 years old; the majority is between 14-19 years old (Annetta, 2008). In several studies from the United States and Taiwan, a significant proportion of players classified as addicted (Charlton & Danforth, 2007; Wan & Chiou, 2006). For instance, in China digital games have become a severe public health concern. About 10 percent of China's more than 30 million Internet gamers were said to be addicted (Young, 2009).

An addiction to digital games can cause a tremendous amount of consequences to the player (Young, 2009). In the literature; game addiction has been described as an impulse control disorder characterized by symptoms such as "the inability to monitor the time spent on game-playing", "a loss of interest in other activities", "continuing to play despite the adverse effects" and "feeling psychologically deprived when not being able to play" (Yalcin Irmak & Erdogan, 2015a, 2015b). And also it cause some other problems like; low self-esteem, high levels of loneliness and shyness (Julia et al., 2014) heart rate increase (Griffiths and Dancaster, 1995) aggressiveness and impulsivity psychological issues; depression, compulsion, suicidal tendencies, attention deficit as well as hyperactivity (Julia et al. 2014) and low self-acceptance (Montag et al., 2011) positively correlated with problematic gaming tendencies. According to Wood et al. (2007), the primary consequence is time lost, and spending too much time on one activity can create its problems.

However, the fact that some people play video games excessively is not in dispute, but defining the point at which the behavior becomes problematic is far from clear. There is little doubt that some people play games too frequently and for longer periods than is good for them physically, socially, and psychologically. People will at times undertake all kinds of activities excessively if the event can distract them from other issues in their lives. This particularly true if the person concerned is having difficulty coping with other aspects of their daily lives. In such situations, some individuals will distract themselves from dealing with their problems by engaging in lengthy video game playing sessions (Richard, 2008). Wood et al. (2007) found that high-frequency video game players were far more likely than low-frequency players to play games to escape from other problems in their lives. According to Kuss et al. (2012), Games offer unique coping strategies to turn users' attention and energy away from real life problems and stress. Sports activities have been regarded as a handy tool to prevent a variety of social issues (Danish et al. 1995; Pitter & Andrews 1997) and also Srdic at al. (2016) sport has an essential role in moderation of bad life habits. That is why this study aimed to investigate students who attend sportive activities and their attitudes to the digital games.

The study, in this regard, aimed to examine the effects of sports activities against digital game addiction. Through the findings of the study, we can better understand how and under what conditions sports events manipulated for preventing students game addiction.

## Methods

*Study Design*

In the study, a cross-sectional method used as study design, and according to Gratton and Jones (2010) this method is perhaps the most commonly used method in social and sport based studies. According to this method, the data obtained from a sampling group relationship is identified and generalized back to the population.

*Sampling Group*

The research group consisted of 1459 (681, %46,7 female and 778, %53,3 male) volunteer high school student who chosen from 7 regions of Turkey.

*Data Collection Tool*

In the research, "Digital Game Addiction Scale" was used which is developed by Lemmens and colleagues (2009) and adapted to Turkish by Irmak and Erdogan (2015). The DGAS is a 5-item Likert type, single-dimension scale made up of 7 questions. The Content Validity Index for the DGAS was 0.92, Cronbach's alpha coefficient was 0.72, and item-total correlation ranged between 0.52 and 0.76 (Yalcin Irmak & Erdogan, 2015b).

*Data Analyses*

The data obtained in the study taken from the SPSS 22 package program and the frequency (f) and percent (%) distributions of the variables calculated. The histograms checked by evaluating skewness and kurtosis to ensure a normal distribution of the data. Skewness and kurtosis values evaluated within research as +2 and -2 (George & Mallery, 2010). Therefore, the t-test and variance analysis (ANOVA) test used. Tukey test results were used to determine which groups differed in meaningful differences. The margin of error in the study was taken as $p<0.05$. The Cronbach alpha value of the study found as 0,82.

## Results

In this section, findings of variables of the study included. The results showing the distribution of amateur football players according to their personal qualities were analyzed and interpreted.

**Table 1**: Statistical distribution values of digital game addiction according to gender variables

| | Gender | N | $\overline{X}$ | Sd | t | p |
|---|---|---|---|---|---|---|
| **Digital Game Addiction** | Female | 681 | 11.62 | 4.77 | -10.74 | 0.00 |
| | Male | 778 | 14.69 | 5.96 | | |

In table 1, it observed that there was a statistically significant difference between male and female students when participating in the study, when digital game addiction and gender variation examined ($p<0.05$).

**Table 2:** Statistical distribution values of digital game addiction according to the variables of sporting activities of the students

| | Sports Participation | N | $\overline{X}$ | Sd | t | p |
|---|---|---|---|---|---|---|
| **Digital Game Addiction** | Yes | 892 | 12.99 | 5.11 | -2.31 | 0.02 |
| | No | 567 | 13.69 | 6.37 | | |

In table 2, it determined that there was a statistically significant difference between the students who did sports and those who did not when the digital game addiction and the sporting activities of the participating students examined ($p<0.05$).

**Table 3:** Statistical distribution values for digital game addiction according to the variable of evaluating leisure time of students

| | Difficulty of Leisure Time Evaluation | N | $\overline{X}$ | Sd | F | p | Tukey |
|---|---|---|---|---|---|---|---|
| **Digital Game Addiction** | [A]Always | 144 | 14.64 | 6.53 | 4.93 | 0.00 | A-B,C |
| | [B]Sometimes | 846 | 13.05 | 5.20 | | | |
| | [C]Never | 469 | 13.21 | 6.07 | | | |
| | Total | 1459 | 13.26 | 5.65 | | | |

In table 3, It observed that there was a statistically significant difference between the students who always had difficulty in evaluating their leisure time and the students who sometimes had difficulty and never had difficulty when the students participating in the study examined the digital game addiction and leisure time evaluation variable($p<0.05$).

**Table 4:** Statistical distribution values of digital game addiction according to the leisure time variable of students per week

| | Weekly Leisure Time (hour) | N | $\overline{X}$ | Sd | F | p | Tukey |
|---|---|---|---|---|---|---|---|
| **Digital Game Addiction** | [A]1-5 | 301 | 12.82 | 5.45 | 5.88 | 0.00 | B-D,E<br>D-B<br>E-A,B,C |
| | [B]6-10 | 445 | 12.82 | 4.94 | | | |
| | [C]11-15 | 337 | 12.90 | 4.95 | | | |
| | [D]16-20 | 192 | 14.20 | 6.60 | | | |
| | [E]21 and over | 184 | 14.71 | 7.18 | | | |
| | Total | 1459 | 13.21 | 5.65 | | | |

In table 4, when students participating in the study examined in term of digital play dependency and leisure time variable a statistically significant difference was found among the students with leisure time of 6-10 hours per week and students with 16-20 hours of leisure time per week and students with leisure time of 21 hours or more per week with 1-5 hour, 6-10 hours and 11-15 hours per week leisure time ($p<0.05$).

## Discussion

This part has tried to examine the relationship between game addiction, gender, regular sports participation, a difficulty of leisure time evaluation and weekly leisure time of the high school students. T-test analyze results showed that the relationship between gender (p=,00; p<0,05) and sport participation (p=,02; p<0,05) digital game addiction was found to be significant. According to these results, we can say that male students are more addicted than female students. When we examine the literature, studies show that male students dedicate more time than females to playing digital games (Bonanno and Kommers 2005). Phillips et al. (2005) found males four times more addicted than

females. Ricardo & Rosa (2002) found males were significantly more likely to play regularly than females. Also, according to Charlton & Danforth (2007) and Chiu et al., (2004) research has shown that male adolescents are more likely to play video games excessively and are more prone to experience negative consequences because of their gaming behavior. In general, individual factors related to online gaming addiction such as sex and age have considered in previous studies. Most studies report that the male sex conveys a 2–3 times higher risk for internet addiction than the female sex (Lee et al., 2013). This situation explained by Bonanno and Kommers (2005) as: "the gender difference in time dedicated to gameplay can attribute to the fact that boys find digital games much more attractive and conducive to their natural cognitive processing." But according to the study of Kim et al. (2008) about the online game addiction and some personality traits, there weren't any significant differences between males and females game addiction. This study also showed the positive effect of sport on students who attend sportive activities on their leisure time. Students who attend sports activities were found to be less addicted to the digital games. In the literature there are some studies improved the positive effect of sport on game addiction (Ekinci et al. 2016; Kim, 2016). According to Hellison & Walsh (2002), sports participants can learn self-discipline, but on the other hand, Australia's former world snooker champion Neil Robertson says an addiction to video games across his career has harmed both his professional and personal life.

ANOVA test results has showed a significant relation between addiction and weekly leisure time (p=,00; p<0,05) and difficulty of leisure time evaluation (p= ,00; p<0,05). According to this results, we can say that as students free time increase their addiction level to the digital games also increase. And these students come across with difficulties to manage their leisure time. According to Yee (2006), as the addiction progress grows, gamers become less interested in hobbies or activities that they used to enjoy and become more fascinated with living inside the game. Ricardo & Rosa (2002) mentioned about people who dedicate much time for games associated with negative self-esteem, depressive mood, social anxiety, and loneliness. Decreasing time for partner, friends, and family (Ruth et al. 2012). Moreover, physical inactivity is the central risk factor for many of the most common chronic diseases, especially heart disease, stroke, cancer, type 2 diabetes and mental health (Badric et al., 2016). With the increase of technological developments, the time that students separate into themselves and their surroundings is decreasing, which causes to be isolated from himself/herself and from the society he lived and thus students becomes lonely. However, students who attend sportive activities on their leisure time are more social than the others.

## Conclusion

Although this study had some limitations such as the number of participants, we believe it may enlighten similar future studies. This study was about high school students, and for future studies, it will be valuable to focus on primary or pre-primary school students to enlighten the main reason why students become addicted. This study showed us a massive percent of high school students become addicted to some digital games. The students on that age have to think to create a new future for them but as results show the amount of addiction reached to a problematic level and most of the students do not know how to manage their leisure time. One of the biggest protector for bad habits, and addiction is sports that is why governments, education associations and especially families have to arrange some sportive activities for their children and give them the culture of the sports if they want to protect them.

## Limitations and Future Studies

Although this study revealed significantly meaning results about addiction level of adolescent, it is impossible to assess general addiction information in a single study and limited variables. The limitations of our study: first, all the participants were from 7 different regions in Turkey the differences (economic, social and environmental) between areas may affect behavior attitudes. Second, other personal factors such as economic welfare and their life style may affect their addiction level. For future studies, it will help to get better information about adolescent growing conditions, parents' attitudes and their knowledge about the negative effect of the games.

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## RAZINA OVISNOSTI DIGITALNIM IGRAMA UČENIKA SREDNJIH ŠKOLA U TURSKOJ

**Sažetak**

Cilj ovog rada bio je istražiti razinu ovisnosti o digitalnim igrama učenika srednjih škola prema sportskom sudjelovanju, spolu, redovitom sudjelovanju u sportu, poteškćama u procjeni slobodnog vremena i tjednom slobodnom vremenu. Sudjelovalo je 1459 srednjoškolaca iz 7 regija Turske (681, 46,7% žena i 778,% 53,3 muškaraca). U studiji je korištena "Digital Game Addiction Scale", koju su razvili Lemmens, Valkenburg i Peter (2009), a Irmak i Erdogan (2015) prilagodili Turskoj. Turska verzija ljestvice sastoji se od jednog faktora i sedam elemenata usidrenih s pet Likertovih ljestvica. Podaci dobiveni u studiji analizirani su SPSS 22 programom. Granica pogreške u studiji uzeta je kao p <0,05. Cronbachova alfa vrijednost studije utvrđena je kao 0,82. Kao rezultat, utvrđeno je da je statistički značajna razlika između muških i ženskih učenika u pogledu ovisnosti o digitalnoj igri u odnosu na spol učenika koji su sudjelovali u istraživanju (p =, 00 ). Utvrđeno je da muški učenici imaju veću ovisnost o digitalnoj igri nego učenice. Također je značajna razlika između sportskog statusa i ovisnosti o digitalnoj igri (p =, 02). Utvrđeno je da je razina ovisnosti o digitalnoj igri učenika koji ne igraju sportove veća od onih koji se bave sportom. Štoviše, uočeno je da je statistički značajna razlika između teškoća procjene slobodnog vremena učenika i vremena provedenog u slobodnom vremenu i ovisnosti o digitalnoj igri (p =, 00). Zaključeno je da učenici sa velikim slobodnim vremenom i studenti koji imaju poteškoća u vrednovanju slobodnog vremena imaju visoku razinu ovisnosti o digitalnoj igri.

***Ključne riječi:*** *digitalne igre, ovisnost, srednja škola, student, sport*

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*Received: 13 July 2017*
*Accepted: 29 November 2017*
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