Game Addiction Level of Turkish University Students Who Play Digital Games Regularly

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Abstract: With the development of technology, people's gaming tools and practices have also changed. While games are an activity that people need to have fun, they are also important for their cognitive and affective development. Today, digital games have largely replaced traditional games and become popular among children and young people. This situation has brought the game addiction, which has become a public health problem all over the world. Therefore, this study aimed to explore game addiction level amongst the university students who play digital games. It was designed as a cross-sectional survey within the quantitative research paradigm. The sample was made up of 164 Turkish university students who are interested in digital games and play them regularly. Data were collected through an online questionnaire including demographic information form and a 7-item game addiction scale. The findings indicated that League of Legends, Counter Strike Global Offensive, GTA San Andreas, GTA 5 were the most frequently games played by the participants. Most participants play games on a daily basis. The game addiction level was fond to be moderate on average and independent of gender, major of study, GPA and year of school.

Keywords: Digital games, Game addiction, Demographics, University students

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Introduction

According to the dictionary of Turkish Language Society (TDK), the concept of game is defined as talent and intelligence developing entertainment with certain rules (TDK, 2023). In the relevant literature, game has been explained with various meanings including but not limited to "the most important job/occupation of children", "one of the sources of creativity", "a bridge between fantasy and reality", "a natural and active learning environment", "fun learning method" and "a voluntary activity that brings happiness" (Yalcin & Bertiz, 2019). While it is essentially a fun activity that entertains the individual, it also provides significant benefits for his/her

physical, emotional, social, cognitive and linguistic development (Akandere, 2006; Yavuzer, 2001). Game playing supports burning fat, strengthening muscles; psychomotor abilities such as power-response readiness, speed, stillness, dynamic attention, coordination and flexibility; the leaning and control of emotions such as jealousy, fear, joy, pity, anxiety, friendship, enmity, love and trust; understanding socialization, respecting the rights and freedoms of others, protecting their own rights and freedoms, help, sharing and leadership; skills for sentence making, asking questions, answering and storytelling, and the development of reasoning, choosing, matching, sequencing, analysis, synthesis and problem solving (Bekmezci & Ozkan, 2015).

With the development of technology, people's gaming tools and practices have also changed (Acikgoz & Akman, 2023; Cakir et al., 2019; Ozturk et al., 2023). Today, digital games have largely replaced traditional games and become popular among children and young people. Games, which in the past were real events with friends in playgrounds and on the streets, have become online events or virtual activities performed at the computer at home or internet cafes (Horzum, 2011). While computer technologies make life easier in many aspects, they have also become increasingly popular tools of entertainment. Especially young people are interested in digital games including computer and video games that can usually played with electronic tools such as computers, tablets, mobile phones, game consoles, Playstation, Xbox and so on. These games include highly interactive and realistic virtual environment allows players to take control of a person or an object and perform functions specific to each game. They can be both online and offline and played individually or in teams. Advances in internet technologies have made them more readily available, attractive and engaging. Players can also join (inter)national tournaments (e-sports) based on mutual competition (Yesilay, 2020).

There are lots of digital games available now, which can be divided into several categories. First Person Shooter Games require players to control a character with a gun or other form of shot. They have been played mostly on computer platforms, but are being played intensively with game consoles such as Xbox, Playstation with the development of technology. Multiplayer Online Battle Arena Games are known as strategy video games and involve two teams of players competing against each other on a predefined battlefield. Massively Multiplayer Online Games are often played online with other players. Role Playing Games require the person taking control of a character in a fictional virtual setting that makes the game feel somewhat realistic (Buyukbaykal & Ili, 2020).

A growing body of literature has demonstrated both benefits and perils of playing digital games. Some suggest that recreational playing may result in enhancements in hand-eye coordination, spatial abilities, imagination, inductive reasoning, mental rotation and spatial visualization, spatial distribution of attention and visual selective attention, task switching and perceptual speed (Blumberg, Altschuler, Almonte, & Mileaf, 2013; Horzum, Ayas & Cakir-Balta, 2008). On the other hand, some indicate that high involvement in these games may lead to deterioration of social relations and communication with family and friends, failures in school and work, tending to aggressive behaviors, disrupting tasks and preferring gaming to other activities, sleep problems, and behavioral addiction (Horzum, 2011; Oztutuncu-Dogan, 2006; Yalcin & Bertiz, 2019).

Game addiction is currently one of the most discussed psychosocial aspects associated with playing digital games. Addictive behavior refers to behavior that is excessive, compulsive, uncontrollable, and psychologically or physically destructive. Accordingly game addiction can be defined as uncontrollable compulsive and excessive gaming that result in social and/or emotional problems. There is considerable disagreement among clinicians and researchers about the use of terminology to describe the addictive gaming behavior. When we look at the related literature, the most prevalent term is game addiction and other terms used include problematic game playing, pathological gaming, and obsessive-compulsive gaming (Yalcin-Irmak & Erdogan, 2015). Regardless of the terminology used, researchers agree that overuse of gaming can lead to a behavioral addiction (Eker & Taş, 2022; Griffiths, 2005; Koc & Tanrikulu, 2021;). Lemmens et al. (2009) defined game addiction as a continuation of excessive and compulsive computer or video game playing even though it causes social and/or emotional problems. American Psychiatric Association (APA) defines this problem as internet gaming disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) which is used by mental health professionals to diagnose mental disorders and recommends conducting further research to support clinical diagnostics (APA, 2013). In 2018, the World Health Organization (WHO) included the category of "gaming disorder" in the forthcoming International Classification of Disease Manual (ICD-11). Both DSM-5 and ICD-11 provide diagnostic criteria for game addiction, which is used by mental health professionals. According to DSM-5, the diagnostic criteria of game addiction include the following nine clinical symptoms (APA, 2013):

- Preoccupation with playing games
- Experiencing unpleasant emotions when playing is reduced/stopped
- Need to spend an increased amount of time in gaming
- Failed attempts to control participation in playing games
- Losing interest in past hobbies and entertainment
- Continue to play games despite having knowledge of psychosocial problems
- Deceiving family members, therapists or others regarding the amount of gaming
- Playing games to escape or eliminate negative feelings
- Harm or lose relationships, work, or education or significant career opportunities because of gaming.

The related literature relieves that young people university students in particular are more vulnerable than other populations because of easy and free access to digital tools, more spare times and less parental/family control. The global prevalence rate ranges from 0.2% to 57% in general population and 0.3% to 90% in clinical populations (Darvesh et al., 2020). The differences in prevalence rates can be attributed to differences in study population, cultural factors, and assessment or diagnostic criteria. Some studies show that game addiction is associated with anxiety, depression, attention deficit hyperactivity disorder (ADHD) symptoms, problematic social media use as well as stress, sleep problems and autistic traits (Mestre-Bach, Fernandez-Aranda & Jimenez-Murcia, 2022). Therefore, depressed and lonely individuals are more likely to become addicted to games. Age and gender is not a significant moderator in most studies (Chiang, Zhang & Ho, 2022).

The majority of the research comes from the Asian and Western countries and little is known about Middle East. The following is the summary of the some research conducted in Turkey that has been reviewed at the beginning of this study. Horzum (2011) examined primary school students' computer game addiction levels according to various variables and found that males, those in the upper economic class and 4th grade students were more game addicted than their counterparts. Yalcin and Bertiz (2019) conducted a qualitative study with interview data in order to investigate the consequences of game addiction on university students. They concluded that time spent on playing games was related to the level of face-to-face communication with family and friends and game addiction had effects such as associating digital games with real life, preferring playing digital games to other activities, and disrupting tasks due to playing digital games. Balikci (2018) researched the relationships between online game addiction and aggressive behaviors in children and adolescents and indicated that online game addiction was associated with aggression; those who preferred online games exhibited more aggressive behaviors, and males were more addicted and aggressive to online games than females. Ayhan and Koselioren (2019) investigated online game addiction of students studying in high schools and found that 1.8% of the participants showed signs of online game addiction while 36.7% were at risk of addiction. It is noteworthy that one fifth of the participants in the study increase the risk of addiction by playing online games for at least two hours a day; the level of addiction increases as the education level of the mother decreases; the participants spend money on playing online games and males are more dependent than females.

Aydogdu (2018) explored whether various variables were effective on the digital game addiction levels of secondary school children who play digital games. As a result, he showed that age and mother's game play status made a significant difference on children's digital game addiction levels whereas gender, number of siblings, father's game playing status, mother and father's education level, and the type of digital game played had no significant effect. Cakici (2018) investigated the relationship between digital game addiction and anger expression styles in adolescents. Males compared to females, 9th and 10th grade students compared to 11th and 12th grade students were found to be more addicted to digital games. She also found a low-level positive correlation between digital game addiction levels and anger expression. Odabasi (2016) studied the relationship between university students' online game addiction levels and subjective happiness levels. She found that both were negatively correlated and males compared to females, freshman compared to junior students were more addicted to online games. Kucuk and Cakir (2020) examined the relationship between digital game addictions and aggression behaviors of secondary school students and whether this relationship differed according to demographic characteristics. They demonstrated positive association between the two variables and males and 8th grade students were more game addicted than their counterparts. Bingol and Eker (2022) showed that competence as a sub-dimension of boredom was a significant predictor of digital game addiction among adolescents. Moreover, digital game addiction levels of boys are higher than girls; adolescents who think that they are raised with an authoritarian attitude are higher than those who think that they are raised with a democratic attitude, and adolescents with low academic achievement are higher than those with medium and high academic achievement.

The purpose of the present study is to investigate game addiction level amongst the university students who play digital games and compare it across some demographics. In order to fulfill this purpose the following research questions were formulated:

- What is the level of participants' game addiction?
- Do their addictions differ with regards to gender, major of study, GPA, and school year?

Method

Since this research explores the current state of game addiction level of a specific population, it was designed as a cross-sectional survey. Using a convenience sampling to overcome time and financial limitations, the sample comprised 164 volunteer and easily accessible Turkish university students who are interested in digital games and play them regularly. To collect data, an online questionnaire was developed through Google Forms and shared with players on the related forums and social media platforms. The first part of the questionnaire included a personal information form and the second one included the Digital Game Addiction Scale (DGAS) adapted to Turkish language by Yalcin-Irmak and Erdogan (2015). The DGAS is unidimensional scale and involves seven 5-point Likert-type items (1=never, 5=always). A composite variable is calculated by summing item scores, which ranges from 5 to 35 with higher scores indicating severe addiction. The Cronbach alpha internal consistency coefficient for this study calculated as 0.79 indicating reliable measurement.

Results

The demographic variables were analyzed using frequency analysis. Regarding gender of the participants, 77% were male and 33% were female. Of the participants, 38% were freshman, 29% were sophomore, 20% were junior and 13% were senior university students. Their area of program of study was distributed as follow: science and engineering (46%), social science (43%), and fine arts and sports fields (11%). Participants reported playing a large number and variety of digital games. The most frequently played games were League of Legends (28%), Counter Strike (20%) and GTA San Andreas/GTA 5 (15%). Time spent daily on gaming was distributed as 1-4 hours (48%), 5-8 hours (28%), 9-12 hours (18%), and 13 hours above (6%).

Table 1 presents the descriptive statistics for the scores that participants obtain from the DGAS. As can been seen, game addiction scores range from 7 to 33 with a mean score of 19.53, just above the midpoint of its scaling range. The standard deviation value is 6.70, which shows moderately narrow dispersions of the data, suggesting that participants' scores are closely clustered around the mean.

Table 1. Descriptive Statistics for Game Addiction Score

Variable	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Game addiction score	7	33	19.53	6.70	0.04	-1.01

An independent-samples t-test was conducted to compare participating game addiction scores across gender (Table 2). There was no significant gender difference [$t_{(162)}$=.24, p>.05] in game addiction scores.

Table 2. Comparison of Game Addiction Scores by Gender

Gender	N	Mean	SD	t	p
Male	127	19.60	6.86	.24	.81
Female	37	19.30	6.19		

A one-way between-groups analysis of variance (ANOVA) was conducted to explore school year differences in participants' game addiction scores (Table 3). There was no significant difference [$F_{(3, 160)}$=.27, p>.05] in game addiction scores among participants with different years of school. Another ANOVA test was conducted to explore major differences in participants' game addiction scores (Table 4). There was no significant difference [$F_{(2, 161)}$=1.74, p>.05] in game addiction scores among participants with different majors.

Table 3. Comparison of Game Addiction Scores by School Year

School year	N	Mean	SD	F	p
Freshman	62	19.74	7.02	.27	.85
Sophomore	48	19.60	6.31		
Junior	33	18.64	6.82		
Senior	21	20.14	6.77		

Table 4. Comparison of Game Addiction Scores by Major

Major	N	Mean	SD	F	p
Science and engineering	75	18.59	6.62	1.74	.18
Social sciences	70	20.01	6.68		
Fine arts and sports	19	21.47	6.81		

One another ANOVA test was conducted to explore grade point average (GPA) differences in participants' game addiction scores (Table 5). There was no significant difference [$F_{(3, 160)}$=2.37, p>.05] in game addiction scores among participants with different GPA.

Table 5. Comparison of Game Addiction Scores by GPA

School year	N	Mean	SD	F	p
0.01 – 0.99	32	21.59	6.68	2.37	.07
1.00 – 1.99	62	20.06	6.50		
2.00 – 2.99	43	18.51	6.41		
3.00 – 4.00	27	17.48	7.13		

The last ANOVA test was conducted to explore daily time spent differences in participants' game addiction scores (Table 6). There was no significant difference [$F_{(3, 160)}$=1.03, p>.05] in game addiction scores among participants with different GPA.

Table 6. Comparison of Game Addiction Scores by Daily Time Spent

Daily time spent	N	Mean	SD	F	p
1 – 4 hours	79	19.09	6.79	1.03	.38
5 – 8 hours	45	19.16	6.61		
9 – 12 hours	30	21.47	6.53		
13 hours and above	10	18.90	6.89		

Conclusion

University students in this study mostly prefer multiplayer, action-based, thriller or war themed games. As far as the average of daily time spent on gaming is concerned, they take a quarter of the day playing. On average, they seem to be moderately addicted to digital games, indicating a higher prevalence compared to previous studies. This may be due to the COVID-19 pandemic. More people especially in Asian countries are showing behaviors associated with gaming disorder and online addiction amid the COVID-19 pandemic. Another reason could be the sample. Most studies in the literature used general populations regardless of whether they are playing or not. But this study explored only regular players. Research regarding game addiction is a rapidly evolving field and findings may change with new studies being conducted. Further studies may focus on comparing cohorts in different regions, countries or cultures. Universities can raise awareness of the condition amongst their students as well as offer cognitive behavioral therapy as a first-line therapy to improve addiction symptoms.

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