



## A Review of the Graduate Theses on Gaming Addiction in Turkey

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### ABSTRACT

Gaming addiction is attracting the attention of more and more researchers every day. Diagnostic criteria defined by World Health Organization (WHO) and American Psychiatric Association (APA) for gaming disorder or internet gaming disorder have caused a rapid increase in the number of studies on the subject. A similar case applies to the studies conducted in Turkey. Regarded as a type of behavioral addiction, gaming addiction is observed in almost every group while it affects children and adolescents in particular. Affecting a wide range of people, gaming addiction can be seen as one of the problems of future because daily life is becoming more technological. This study accordingly aimed to review gaming addiction in graduate theses in Turkey. The research used the document analysis method of qualitative research methods, and the research sample composed of 28 graduate theses. It was found in the research that the studies started to increase after 2013, and the actual concentration was seen in 2018. The research studies were conducted primarily on children and adolescents followed by young and adult groups. It was found that the most used research design was the quantitative research design and none of the studies utilized the qualitative research design on its own. The most used research model was the survey model, and the correlation analysis was found to be the most used data analysis technique. It was also observed in the research that gaming addiction was studied along with both negative concepts such as depression, anxiety, somatization, and obesity and positive concepts such as self-regulation, subjective happiness, satisfaction with life, and social support.

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Gaming addiction, graduate education, document analysis

### 1. Introduction

Technological developments have impacted the humankind's life deeply, changing their lifestyles. Computers, internet and internet applications are renewing and improving themselves every day, leaving their mark on life and creating different opportunities. Several needs such as shopping, entertainment, socialization which would be met within social life in the past can now be met with different applications via internet at home without even going outside. As the number of needs met via internet increases, individuals are now imprisoned at home and drift away from social life even further. A need of individuals which changes along with technological developments is entertainment. Traditional games that used to be played on streets have now been replaced by new games in the virtual world.

Games support child's mental, physical and emotional development (Egemen, Yılmaz, & Akıl, 2004) and help the child integrate his/her inner world with social life (Başal, 2007). As well as being important for children's development, games are great tools of entertainment for adults. However, quality of games has evolved today, and traditional games have been greatly replaced by digital games. Especially the limitless and interactive space that online games offer individuals makes them very popular among them (Liu, & Chang, 2016). The

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fact that digital games are more attractive than traditional ones and address several areas of sense at the same time brings about the intensive use of games. Intensive use of games may be problematic. So, digital game addiction manifests itself as a problem. Gaming addiction, which was controversial at the very beginning as it is a type of behavioral addiction and does not involve the intake of a chemical substance (Speakman, Konijn, Roelofsma & Griffiths, 2013) seems to be out of the focus of the debates with the publication of Diagnostic and Statistical Manual of Mental Disorders (DSM V) by the American Psychiatric Association (APA, 2013). Internet gaming addiction is handled within nine criteria in DSM V. This criteria include "constant preoccupation with internet games (thinking about the game, participants of the game, next games; gaming being the most dominant activity of daily life), withdrawal symptoms when gaming is taken away or not possible (sadness, anxiety, irritability), tolerance (spending more time gaming gaming), inability to reduce playing, unsuccessful attempts to quit gaming, loss of interest in everything except internet games (in previously enjoyed activities due to gaming), continuing to game despite the psychosocial problems, deceiving family members or others about the amount of time spent on gaming, the use of internet games to relieve negative moods, having jeopardized or lost an important relationship, job or an opportunity about education or career due to internet games" (APA, 2013, p.795).

Another development about the recognition of gaming addiction is that the World Health Organization (WHO, 2018) recognized gaming disorder as a mental health problem in International Classification of Diseases (ICD 11). WHO (2018) states that the following three criteria need to be met for at least 12 months so that the individual can be diagnosed with gaming disorder: "impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context), increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities, continuation or escalation of gaming despite the occurrence of negative consequences. The behavior pattern is of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning."

With both organizations having declared the criteria, it can be argued that there have been fewer debates on the criteria related to gaming addiction. One can argue that future discussions will be on the causes of gaming addiction, and its intensity, frequency and the areas it affects. It is observed that gaming addiction has been conceptualized in different forms such as digital game addiction, video game addiction, computer gaming addiction, and internet gaming addiction in the literature. According to the research studies in the literature, gaming addiction is positively correlated with attention deficit hyperactivity disorder, depression, anxiety and obsessive-compulsive disorder (Andreassen et. al., 2016), shyness (Ayas, 2012), aggression (Çankaya & Ergin, 2015), video gaming duration (Gökçearslan & Durakoğlu, 2014), attention deficit hyperactivity disorder and depressive mood (Hyun et al., 2015), anxiety (Kim, Hughes, Park, Quinn, & Kong, 2016), trait anxiety (Mehroof & Griffiths, 2010) and social anxiety (Yıldız, Tüfekçi & Aksu, 2016; Karaca et al., 2016) and negatively correlated with emotional regulation and school engagement (Liu et al., 2017) and emotional regulation (Ulum, 2016).

It is understood from the studies in the literature that gaming addiction affects individuals in several areas including mental health, socialization and emotion. Further digitalization of daily life gives the idea that this problem will even worsen in the future. In recent years, there have been many studies on the review of graduate theses in Turkey (Alpaydın & Erol, 2017; Ataseven & Oğuz, 2015; Güngören, Erdoğan & Ayas, 2018; Koç, 2016; Tosun Sümer and Güven, 2018). However, no study was observed on gaming addiction. The fact that gaming addiction has an impact on a wide range of groups including children and adolescents makes this study important. The review of graduate theses on gaming addiction in Turkey would provide information on the aspects of the concept (research frequency, associated variables, sample, etc.).

### **1.1. Purpose of the Research**

This research aimed to review gaming addiction, which is becoming a global problem, in graduate theses in Turkey. While providing information on matters such as on which samples gaming addiction has been studied, with which concepts it is associated, and in which years it has been studied intensively, the research also aimed to give an idea for future studies. To this end, answers were sought to the following questions:

What are the descriptive statistics of theses on gaming addiction?

On which sample groups has gaming addiction been studied?

With which designs, models and data analysis techniques has gaming addiction been investigated?

With which concepts has gaming addiction been studied and what results have been achieved?

## 2. Method

Investigating the gaming addiction in graduate theses in Turkey, this study utilized the document analysis method of qualitative research methods. Document analysis refers to the analysis of written documents that involve information on phenomena and events about the studied subject and to reaching the data that need to be obtained (Karataş, 2015).

The research sample was composed of all graduate theses that were conducted in Turkey between 2010 and 2018 and that were available. Key concepts of Digital Game Addiction, Computer Game Addiction, Gaming Addiction, Online Gaming Addiction, and Video Game Addiction were entered in the Higher Education Council (YÖK) National Thesis Center search engine, and 30 graduate theses were accessed. Since two theses had no access permit, the analyses were performed on 28 theses. The following is the distribution of the accessed theses by universities: Bahçeşehir University (6), Üsküdar University (2), Haliç University (2), FSM Vakıf University (2), Niğde University (2), Sakarya University (2), Aydın Adnan Menderes University (1), Tokat Gazi Osmanpaşa University (1), Fatih University (1), Beykent University (1), Van Yüzüncü Yıl University (1), Hasan Kalyoncu University (1), Kafkas University (1), Nişantaşı University (1), Kocaeli University (1), Gazi University (1), Ordu University (1), and Marmara University (1).

Accordingly, it is seen that the highest number of theses on gaming addiction were published at Bahçeşehir University with 6 theses, and other universities were close to each other in numbers. The concept of gaming addiction was utilized in this study instead of all other concepts.

### 2.1. Data Analysis

The graduate theses were subjected to the document analysis in the research. Accordingly, information was provided on the level of graduate, year, sample groups, methods used, subjects studied, and results achieved concerning the theses on gaming addiction. Socio-demographic variables were not examined in this study.

## 3. Results

In this section, the statistical data are addressed in the first place. 28 graduate theses written on gaming addiction between 2010 and 2018 were reviewed in this research. Of the theses, 26 were postgraduate theses, 1 was doctoral dissertation, and 1 was specialization in medicine thesis. The distribution of the theses by years is shown in Table 1.

**Table 1.** Distribution of postgraduate, doctoral and specialization in medicine theses in the sample by years

Years	Postgraduate	Doctoral	Specialization in Medicine
2010	1	-	-
2013	1	-	-
2014	1	-	-
2015	2	-	-
2016	3	1	-
2017	2	-	1
2018	16	-	-
Total	26	1	1

According to Table 1, the studies on gaming addiction are fairly recent. It is seen that the studies began as recent as in 2010 and the concentration occurred in 2018. While the number of studies conducted between 2010 and 2018 was 12 (43), 16 (27%) theses were written in 2018 alone. Table 2 presents the distribution of the theses by sample groups.

**Table 2.** Sample groups of the graduate theses

Sample Group	f	%
Primary School	1	3.6
Secondary School	7	25
High School/Adolescent	6	21.4
University	5	18
Student-Parent Mixed	1	3.6
Undergraduate and Graduate	1	3.6
Gifted Students Aged between 8 and 12 years and their Teachers	1	3.6
Between the Age of 10 and 19 years	4	14.3
Between the Age of 12 and 65 years	2	7.1

According to Table 2, gaming addiction has been studied on different samples. The studies seem to be concentrated on children and adolescents. Of the studies, 18 (64%) were on children and adolescents aged between 10 and 19 years, 5 (18%) were on undergraduates, and 5 (18%) were on mixed groups. The data on which designs and models the graduate theses utilized are given in Table 3.

**Table 3.** Design and model of the graduate theses

Design used	Model used	f	%
Qualitative	-	-	-
	Experimental	1	3.6
Quantitative	Survey	26	93
Mixed		1	3.6

According to Table 3, of the studies, 27 (96.4%) were conducted in the quantitative research design while 1 (3.6%) used the mixed research design (qualitative-quantitative). It was observed that no study was conducted with the qualitative research method. The techniques used in the data analysis are given in Table 4.

**Table 4.** Data analysis techniques used by the theses

Analysis technique*	f
Correlation	19
ANOVA	18
t test	18
Mann-Whitney U	10
Kruskal-Wallis H	5
Regression	4
Chi-square	3
Confirmatory factor analysis	2
Exploratory factor analysis	2
Mediation model	1
MANOVA	1
Covariance (ANCOVA)	1
Wilcoxon Signed-Rank Test	1

As seen in Table 4, the theses used correlation (19), ANOVA (18), t test (18), Mann-Whitney U (10), Kruskal-Wallis H (5), regression (4), chi-square(3), Confirmatory Factor Analysis (2), Exploratory Factor Analysis (2), Mediation Model (1), MANOVA (1), ANCOVA (1), and Wilcoxon (1) techniques, respectively. Accordingly, the most used analysis technique in the theses is correlation, and the least used techniques are ANCOVA, MANOVA, mediation model and Wilcoxon Signed-Rank Test. Table 5 shows with which concepts gaming addiction has been studied and what results have been achieved in the graduate theses in the sample.

**Table 5.** Variables studied with gaming addiction and results achieved

<b>Name of thesis</b>	<b>Variables</b>	<b>Result</b>
Erboy, 2010	Alienation from School	Alienation from school predicts computer game addiction.
Kaya, 2013	Scale development	A valid and reliable scale was developed.
Hazar, 2014	Level of participation in sports	It was found that the participants with high level of participation in sports had high levels of gaming addiction.
Topşar, 2015	Emotional intelligence.	Emotional intelligence was found positively correlated with gaming addiction.
Durna, 2015	Executive functioning, response inhibition and emotional memory, aggression, empathy, personality, depression, anxiety and satisfaction with life	Violent games adversely affect executive functioning and response inhibition. Psychoticism, aggression, and desire and urge to gaming was found higher in the risky and addicted group.
Musluoğlu, 2016	Attachment styles	Attachment styles predict gaming addiction.
Odabaşı, 2016	Subjective happiness	A negative correlation was found with subjective happiness.
Zekihan Hazar, 2016 (Doctoral)	Effects of games involving physical mobility (experimental)	Games involving physical mobility decreased gaming addiction scores.
Balak, 2016	Somatization and Theory of Mind (Reading the mind in the eyes)	A positive correlation with somatization and a negative correlation with reading the mind in the eyes was found.
Eni, 2017	Perceived parental attitude	A positive correlation with authoritarian and over-protective parental attitude and a negative correlation with democratic attitude was found.
Karagöz, 2017 (Specialization in medicine)	Family attitudes, time spent on internet, type of game, purpose of using internet, family-child internet addiction	Family attitudes found to have no correlation. A positive correlation was found between family-child internet addiction and time spent on internet, strategy video games, and using internet for gaming.
Yiğit, 2017 (Mixed)	Family characteristics	Characteristics of gaming addicted families: It is observed that there is less attention, they feel helpless in the face of the adversities of technology and prohibit technology, experience communication problems with their children and apply mild and severe violence. Characteristics of non-gaming addicted families: It is observed that they are extended families, there is a peaceful family environment, there are no absolute prohibitions but certain rules, desired technological tools are not bought right away, the games played are limited.
Derici, 2018	Emotional memory and psychological factors	A positive correlation with depression, anxiety and aggression and a negative correlation with empathy was found. No significant difference was found in terms of emotional memory.
Bekâr, 2018	Attention deficit hyperactivity disorder	A positive correlation was found with attention deficit hyperactivity disorder.

Aktaş, 2018	Psychological resilience, aggression	A negative correlation with psychological resilience and a positive correlation with aggression was found.
Orhan, 2018	Physical activity, level of attention	A negative correlation with physical activity and level of attention
Şahin, 2018	School social behaviors of gifted students	A negative correlation with school social behaviors
Çakıcı, 2018	Anger expression styles	A positive correlation with anger expression subscale
Yılmaz, 2018	Effects of violent video games on working memory	Reduction in P300 amplitude values and delay in latency values were found. In other words, inadequacy was found in evaluating and deciding and allocation of attention.
Ücan, 2018	Perceived social support	A negative correlation was found with perceived social support.
Aksel, 2018	Self-regulation and social tendencies	A negative correlation was found between gaming addiction and “self-regulation failure” and “self-regulation success” subscales of self-regulation abilities skills. A positive correlation was found between gaming addiction and “violence tendency” subscale of social tendencies scale.
Balıkçı, 2018	Aggressive behaviors	A positive correlation was found between online gaming addiction and physical aggression, anger, hostility, verbal aggression and aggression of aggressive behaviors.
Büdük, 2018	Obesity level	It was not found correlated with body-mass index.
Bekir, 2018	Emotional schemas and agentic personality	It was found that uncontrollability, weakness against emotions, comprehensibility, desire of rationality, rumination, difference, denial of emotions, approval, finding emotions harmful, acceptance of emotions, consensus and guilt predicted gaming addiction by 52%. No correlation was found between gaming addiction and agentic personality.
Kurtbeyoğlu, 2018	Demographics	Gaming addiction was found higher among males. Gaming addiction differs significantly by family income level, gaming duration, frequency of digital game purchase, reasons for gaming, type of gaming device (desktop, smartphone) and type of game (action, adventure, sports).
Dönmez, 2018	Conscious awareness and satisfaction with life	Conscious awareness and satisfaction with life predict gaming addiction negative significantly. Conscious awareness was found to be a partial mediator in the relationship between satisfaction with life and gaming addiction.
Aksoy, 2018	Lifestyle behaviors	A negative correlation was found between gaming addiction and “interpersonal relationships” and “stress management” subscales of lifestyle.
Kasap, 2018	Visuo-spatial memory	No effect was found on visuo-spatial memory.

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According to Table 5, gaming addiction were studied with different variables. It is seen that gaming addiction has been studied both with negative variables such as alienation from school, somatization, obesity, depression, anxiety, aggression and emotional schemas and positive variables such as satisfaction with life, social support, lifestyle behaviors, conscious awareness, demographics, self-regulation, sports and physical activities, emotional intelligence, subjective happiness, cognitive psychology (memory, attention, evaluation, visuo-spatial memory). The concept has also been studied with variables including personality and attachment styles. In the light of these variables studied with gaming addiction, one can argue that the concept has been studied broadly.

#### 4. Discussion and Conclusion

It is seen that gaming addiction has been studied with concepts of different disciplines and on different populations. In recent years, there have been many studies on the review of graduate theses in Turkey (Alpaydın and Erol, 2017; Ataseven and Oğuz, 2015; Güngören, Erdoğan and Ayas, 2018; Koç, 2016; Tosun Sümer and Güven, 2018). However, no study reviewing graduate theses on gaming addiction was observed, which makes reviewing the theses performed on gaming addiction important. This research aimed to review studies which were conducted on game addiction in Turkey between 2010 and 2018. To this end, 28 theses were reviewed in terms of their years, universities, research designs, models and data analysis techniques, variables studied, and results achieved.

Firstly, the descriptive statistics of the theses were handled in the research, and it was observed that the theses were mainly postgraduate theses, and there was an accumulation of studies in 2018. One doctoral dissertation and one specialization in medicine thesis was observed. How gaming addiction has been studied mainly in postgraduate theses might be because it is a quite new field. It is seen that the studies started increase as of 2013, and only one study had been carried out before. Increased number of studies as of 2013 can be attributed to the inclusion of internet gaming disorder in Section III of the Diagnostic and Statistical Manual of Mental Disorders (DSM V, 2013) by the American Psychiatric Association (APA, 2013). This means that it can be accepted as a diagnosis if sufficient number of studies are performed on internet gaming disorder. DSM V set nine criteria about addiction to gaming, preventing the diagnostic problems. It is seen that majority of the studies were performed in 2018. 2018 is also the year when World Health Organization (WHO, 2018) recognized gaming disorder as a mental health problem in the International Classification of Diseases (ICD 11). WHO similarly set certain diagnostic criteria and came up with a diagnosis according to these criteria. Both developments having eliminated the uncertainty about diagnostic criteria might have caused an increase in the number of studies on gaming addiction.

Another matter investigated in the research was on which samples the studies on gaming addiction were conducted most. As observed in the research, while the studies were on a wide range of groups (children, adolescents, undergraduates, adults), majority of them were conducted on children and adolescents. Adolescence is a period during which adolescents look for their identity, what to value, what goal to pursue and whom to attach to (Yavuzer, 2002). Since this is a searching period, there are lots of emotional fluctuations and younger ages are a risk factor for addiction in general (Demirtaş Madran and Ferligül Çakılcı, 2014), children and adolescents are a significant target group for gaming addiction. There are certain factors which make games attractive for children and adolescents. Some of the factors include the fact that adolescents can gain prestige and meet the need for self-actualization via games (Li and Wang, 2013), that games are important tools of entertainment for children (Çakır, 2013), that their visual effects and action are attractive for children (İşçi, 2011), and games are based on interaction and have an aspect of communication (Gürcan, Özhan and Uslu, 2008). Given developmental characteristics of children and adolescents and the features of games altogether, gaming addiction is a severe risk factor for this period in particular. This justifies the fact that the studies have been concentrated on children and adolescents. What can be concluded from the studies having focused on different groups such as undergraduates and adults is that it may affect a wide range of groups although children and adolescents are mainly affected by the concept.

Another finding achieved in the research was in which designs the graduate theses were carried out. The most preferred design was found to be the quantitative research design. While no study in the qualitative research design was observed, only one study was performed in the mixed (qualitative-quantitative) design. Similarly, the studies conducted by Horzum and Ayas (2017) reviewing the articles on cyberbullying in Turkey, Arık

and Türkmen (2009) reviewing the articles published in educational sciences journals and the meta-evaluation carried out by Yılmaz (2017) on the organizational power studies in Turkey observed that the quantitative research methods were used more. It can be said that this research finding coincides with the findings achieved in the literature. Although quantitative research methods have been the single source of information in the fields of social sciences and education with their generalizability for a long time, it has been noticed that quantitative methods fall insufficient in explaining educational phenomena and events and are not directing enough in practices in the field of education (Yıldırım, 1999). Whereas assessment and generalizability in studies on gaming addiction are important, it is also important to achieve results for practitioners who want to cope with this problem. Hence, it is critical to use the qualitative research methods which allow for in-depth and flexible research in the context to which phenomena are related (Yıldırım, 1999). Quantitative research methods having been greatly used gaming addiction studies can be regarded as a limitation.

Another finding of the research is the data analysis techniques most frequently used in the studies. Accordingly, the most used techniques in the theses were difference tests, correlation and regression. In the literature, it is also observed in the studies in educational and social sciences (Erdem, 2011; Horzum and Ayas, 2017; Yılmaz, 2017) that correlation, regression and difference tests and factor analysis are rather used. This result is in parallel with the most used research design mentioned above. Qualitative research design being the most used designed also had its effects on data analysis techniques. In other words, these analysis techniques are the natural outcome of the research designs used.

Another finding to be achieved in the research was with which concepts gaming addiction was studied in the graduate theses. In the research, it is seen that gaming addiction has been studied with both negative and positive variables and neutral variables. The fact that the concept has been studied with negative variables such as alienation from school, somatization, obesity, depression, anxiety, aggression and emotional schemas is important for identifying the concomitant psychosocial problems. In coping with gaming addiction, it is important to study with factors that accompany or trigger gaming addiction for the treatment plan to achieve its goal. On the other hand, studying the concept with positive variables such as satisfaction with life, social support, conscious awareness, self-regulation, sports and physical activities, emotional intelligence and subjective happiness is important for identifying the variables that prevent the formation of game addiction. Since gaming disorder is perceived as a mental health problem (WHO, 2018), studying the variables that will help cope with or prevent this problem will also contribute to the preservation of mental health. The concept has also been studied with variables of both positive and negative characteristics such as personality and attachment styles. These variables that have been studied with gaming addiction are important in terms of assessment.

Consequently, among the graduate theses performed in Turkey between 2010 and 2018, the ones that could be accessed were reviewed and analyzed with document analysis. One of the limitations of the study is that not all graduate theses could be accessed as some authors did not allow access to their theses. Another limitation is the lack of results regarding the sociodemographic variables discussed in the theses. Since these variables have been addressed in almost all the theses written in Turkey, their investigation would pave the way for quite a widening of the scope of any study. These variables were not included in the research because they are subject matters on their own.

Some limitations were found in regard to the theses in the research. The theses seem to have reached quantitative research data in general. This poses a limitation in terms of obtaining in-depth information. In quantitative studies, experimental studies were found to be almost non-existent. This will create a great limitation in the development of programs for coping with gaming addiction. The emphasis on qualitative and mixed studies in future studies is important for understanding the phenomenon. Experimental studies of quantitative research methods and structural equation modeling based on theoretical background can be utilized. Future studies can investigate gaming addiction in terms of sociodemographic variables.

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