

## A Review of Graduate Theses Conducted in Turkey on Internet Addiction\*

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**Ayten Doğan Keskin\*\***

**Neriman Aral\*\*\***

### Abstract

Internet can affect the human life in both positive and negative way. One of these effects is an internet addiction. Several studies have been done relating to Internet addiction. Examination of the studies are important for revealing which topics have been studied more. Therefore, the study was undertaken to examine the theses made associated with Internet addiction. This study was conducted through document analysis method. A search of the National Thesis Center website was conducted using the search term Internet addiction in all fields and in all thesis types. 279 theses were examined which archived at the databases. According to the findings; adolescents for the sample type were used in 53.1% of the thesis. In the theses about internet addiction, the variables that are most related to internet addiction are; depression, anxiety, attachment, gender, internet usage time. The variables with the most significant difference with internet addiction are gender, class level, income. Repeating this study at regular intervals would make it possible to assess the progress of studies into Internet addiction over time.

**Keywords:** Addiction, behavioral addiction, excessive internet use, thesis

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\*\* *Corresponding Author:* Assist. Prof. Dr., University of Health Sciences, Gülhane Faculty of Health Sciences, Department of Child Development, Ankara, Turkey. E-mail: ayten.dogankeskin@sbu.edu.tr, <https://orcid.org/0000-0002-1163-4856>

\*\*\* Prof. Dr., Ankara University, Faculty of Health Sciences, Department of Child Development, Ankara, Turkey. E-mail: aralneriman@gmail.com, <https://orcid.org/0000-0002-9266-938X>

## Türkiye’de İnternet Bağımlılığı ile İlgili Yapılan Lisansüstü Tezlerin İncelenmesi\*

<b>Makale Türü</b>	<b>Başvuru Tarihi</b>	<b>Kabul Tarihi</b>
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**Ayten Doğan Keskin\*\***

**Neriman Aral\*\*\***

### Öz

İnternet insan yaşamını olumlu ve olumsuz olarak etkileyebilmektedir. Bu etkilerden biri internet bağımlılığıdır. İnternet bağımlılığı ile ilgili çeşitli çalışmalar yapılmaktadır. Yapılan çalışmaların incelenmesi, hangi konular üzerinde daha fazla çalışıldığının belirlenmesi açısından önem taşımaktadır. Bu nedenle, çalışmada internet bağımlılığıyla ilgili lisansüstü düzeyde yapılan tezlerin incelenmesi amaçlanmıştır. Bu çalışma nitel araştırma yöntemlerinden doküman analizi ile yapılmıştır. Ulusal Tez Merkezi web sitesinde, tüm alanlarda ve tüm tez türlerinde İnternet bağımlılığı arama terimi kullanılarak araştırma yapılmıştır. Veri tabanlarında arşivlenen 279 tez incelemeye alınmıştır. İnternet bağımlılığı ile ilgili lisansüstü düzeyde yapılmış tezlerin çalışma gruplarının %53,1’i ergenlerden oluşmaktadır. İnternet bağımlılığı ile ilgili yapılmış tezlerde, internet bağımlılığı ile en fazla ilişkili bulunan değişkenler; depresyon, anksiyete, bağlanma, cinsiyet ve internet kullanım süresidir. İnternet bağımlılığı ile en fazla anlamlı farklılık bulunan değişkenler; cinsiyet, sınıf düzeyi ve gelirdir. Bu çalışmayı düzenli aralıklarla tekrarlamak, zaman içinde internet bağımlılığı konusundaki ilerlemeleri değerlendirmeyi mümkün kılacaktır.

**Anahtar Sözcükler:** Aşırı internet kullanımı, bağımlılık, davranışsal bağımlılık, tezler

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\*\* *Sorumlu Yazar:* Dr. Öğr. Üyesi, Sağlık Bilimleri Üniversitesi, Gülhane Sağlık Bilimleri Fakültesi, Çocuk Gelişimi Bölümü, Ankara, Türkiye. E-posta: ayten.dogankeskin@sbu.edu.tr, <https://orcid.org/0000-0002-1163-4856>

\*\*\* Prof. Dr., Ankara Üniversitesi, Sağlık Bilimleri Fakültesi, Çocuk Gelişimi Bölümü, Ankara, Türkiye. E-posta: aralneriman@gmail.com, <https://orcid.org/0000-0002-9266-938X>

## Introduction

The Internet, which connects devices like computers, tablets and phones with one another, and can be a driver of social change as a global means of communication, has rapidly become more widespread in recent years. The Internet is an important means of communication and information-sharing. It offers many activities that have changed many aspects of daily life, as well as making it easier (Yellowlees and Marks, 2007). That said, it has also led to some problems, foremost among them being Internet addiction. Previous debates about Internet addiction revolved around the issue of whether or not non-substance addictions were possible, but it is now recognized as a behavioral addiction, and was included in Section III of the The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as Internet Gaming Disorder (IGD) in 2013, with further research recommended for the inclusion of IGD in the main section of the book (American Psychiatric Association [APA], 2013). In 2018, World Health Organization (WHO) included Gaming Disorder in ICD-11 (WHO, 2019).

Internet addiction is considered to be a behavioral addiction. Behavioral addictions have been associated with social and personal problems. Internet addiction has been defined as a clinical disorder that gives rise to relationship, professional and social problems (Young, 2007). The rapid spread of the Internet has resulted in problems related to pathological over-use. A decline in performance at work or in school and health issues related to the over-use of the Internet are indicators of Internet addiction (Öztürk, Odabaşoğlu, Eraslan, Genç and Kalyoncu, 2007). Epidemiological studies of Internet addiction have shown that the prevalence of Internet addiction is in the range of 6–14% (Black, Belsare and Schlosser, 1999; Doğan, 2013; Sherer, 1997). It has also been found that 38% of people with Internet addiction have additional addictions, such as gambling or sex addictions (Arısoy, 2009).

As a source of information, the Internet is a critical tool both for researchers and for society at large. The Internet, Internet use and the problems associated with the Internet have been studied in many disciplines (Doğan, 2013), and the studies of Internet addiction reflect this diversity. Reviewing the studies conducted in a given field is important, in that it can help identify the level and extent of our knowledge in the field, and can clarify which topics are the most studied (Kozak, 2000).

According to Internet World Stats (IWS) 2019 data, Turkey ranks third in internet usage in Europe (Russia 16%, Germany 10.9%, Turkey 9.5%, United Kingdom 8.7%, France 8.3%) (IWS, 2019). Internet use is spreading rapidly in Turkey. The Internet creates many problems related to gambling, betting, online shopping, cyber-crime, and last but not least, Internet addiction. Many studies are being conducted in different parts of the world on the misuse and negative effects of the Internet, however those conducted in Turkey and their results provide little practical guidance. There have been academic studies conducted in Turkey examining diagnosis and treatment interventions, as well as preventive healthcare policies, while there is a lack of experimental studies into treatments, and a further lack of studies identifying policies that may protect and improve health. To address this shortfall, the present study examines previous graduate theses on the subject of Internet addiction, aiming to contribute to literature by answering the questions of whether these theses complement or repeat one another, which topics and concepts related to Internet addiction are studied, and whether the same methods are used in the examination of similar concepts.

There is an increasing number of studies conducted in Turkey on the subject of Internet addiction. Conducting an in-depth review of studies on Internet addiction would serve to draw attention to the issue so that the necessary measures can be taken. This study aims to evaluate the graduate theses conducted to date in Turkey on Internet addiction, which is considered to be a public health issue, and will seek answers to the following questions:

Regarding the theses conducted in Turkey on Internet addiction:

- 1) What is the distribution of the theses with regards to the type of thesis, the type of graduate school, the language, the research design, the participants and the regions in which they were conducted?
- 2) What are the findings regarding the prevalence of Internet addiction?
- 3) Which terms are the most common in the thesis titles?

- 4) Which variables are found to be associated/unassociated with, and vary/do not vary significantly with Internet addiction?
- 5) What are the risk factors for Internet addiction, and which groups are most at risk?
- 6) Which variables increase or decrease with higher levels of Internet addiction/Internet use?

## **Method**

### **Research Design**

This study makes use of a document analysis, as a qualitative research method. A document analysis involves an examination of written materials containing information about the target phenomena (Yıldırım and Şimşek, 2011). A document analysis can be used as a standalone research method in cases where interviews or observations are not possible (Şimşek et al., 2008). The theses reviewed in the study were selected using a criterion sampling method, which is a non-random and purposive sampling approach. Purposive sampling allows the researcher to select cases that are rich in information, given the purposes of the study, allowing an in-depth examination. In criterion sampling, the units that meet the criteria for inclusion are included in the sample. Criterion sampling is also used when an in-depth follow-up study is planned based on the results of a quantitative study (Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2015).

### **Research Sample**

The study population were graduate theses conducted in Turkey on the subject of Internet addiction. The sampling criterion used was that the theses had to be graduate theses on Internet addiction, and archived by the National Thesis Center (NTC) of the Turkish Council of Higher Education. For the in-depth analysis, a total of 279 theses between 2003-2019 on Internet addiction identified in the NTC archive were included in the study. Only the abstracts were included in the analysis, as time limitations prevented scrutiny of the entire texts of the theses.

### **Research Procedure**

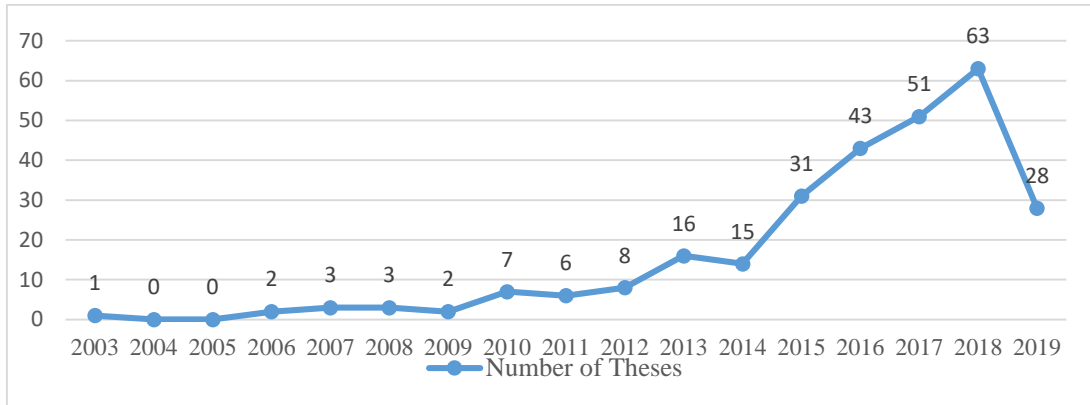
A search of the NTC website was conducted between August 30 and November 2, 2019 using the search term “*İnternet bağımlılığı*” (“Internet addiction” in Turkish) in all fields (title, subject, index terms and abstract) and in all thesis types. The search turned up a total of 279 master’s, PhD and medical specialty theses on Internet addiction.

### **Data Analysis and Process**

The theses included in the study were read by the researchers and analyzed in terms of date of publication, type of publication, type of graduate school, research design, language and region. The theses were also examined in terms of reported prevalence of Internet addiction, the most frequent words in the titles, variables found to be associated/unassociated with, and varying/ not varying significantly with Internet addiction, the risk factors of Internet addiction and the at-risk groups, and variables found to increase or decrease with higher levels of Internet addiction/Internet use. The theses included in the study were organized on the basis of the criteria set, the data was defined and coded, and frequency distributions were created.

## **Results**

The findings of the present study, being a review of graduate theses written in Turkey on Internet addiction, are reported in the following tables and graphs.



**Figure 1.** Publication Years of Theses on Internet Addiction

Figure 1 shows that the number of graduate theses on Internet addiction has increased over time. The first thesis on Internet addiction was written in 2003. Theses on Internet addiction continue to be prepared.

**Table 1**

*Frequency and Percentage Distributions Theses on Internet Addiction by Type of Thesis, Type of Graduate School, Research Design, Language and Region*

	f	%
<b>Type of Thesis</b>		
PhD	18	6.5
Medical specialty	52	18.6
Master's	209	74.9
<b>Type of Graduate School</b>		
Social sciences	129	46.2
Educational sciences	57	20.4
Faculty of medicine/training and research hospital	52	18.7
Health sciences	28	10.1
Natural sciences	8	2.8
Other (forensic science, sports science)	5	1.8
<b>Research Design</b>		
Quantitative	266	95.4
Other (qualitative, mixed, unspecified)	13	4.6
<b>Language</b>		
Turkish	274	98.2
English	5	1.8
<b>Region</b>		
Mediterranean	21	7.6
Eastern Anatolia	25	9
Aegean	29	10.4
Southeastern Anatolia	9	3.2
Central Anatolia	52	18.6
Marmara	131	46.9
Black Sea	10	3.6
Other/Mixed	2	0.7
<b>Total</b>	<b>279</b>	<b>100</b>

Table 1 shows that a total of 279 graduate thesis were written on Internet addiction over the time period covered by this study. Of these, 74.9% were master's theses. Of the graduate theses on Internet addiction, 46.2% were written in social sciences graduate schools, 95.4% used quantitative designs, 98.2% were in Turkish and 46.9% were conducted in the Marmara region.

**Table 2**  
*Frequency and Percentage Distributions of Theses on Internet Addiction by Participants*

	<b>f</b>	<b>%</b>
Adolescents	148	53.1
College students	74	26.5
Adults	34	12.2
Children, children and adolescents, adolescents and college students	9	3.2
Unspecified or no participants	14	5
<b>Total</b>	<b>279</b>	<b>100</b>

Table 2 shows that participants were adolescents in 53.1% of the graduate theses on Internet addition, college students in 26.5% of the theses, adults in 12.2% of the theses (public servants, parents, office workers, academicians, teachers, healthcare providers, law enforcement officials, working women, married couples, etc.), children, children and adolescents, and adolescents and college students in 3.2% of the theses, and unspecified in 5% of the theses.

**Table 3**  
*Variables Found to be Associated with Internet Addiction*

<b>Internal Variables</b>	<b>External Variables</b>
Individual	Smartphone use
Type of attachment/Attachment/Attachment style/Maternal attachment style/Insecure attachment	Number of computers
Self-respect/Low self-respect/Self-esteem	Online sex
Conscious awareness	Online gambling
Perceived information technology self-efficacy	Digital game addiction/Online gaming/Gaming addiction
Obsession with sexual behaviors, compulsive sexual behavior	Having computers at home
ADHD/ADHD traits/Impulsivity	Time spent on Facebook
Depression	Easy access to the Internet
Emotional intelligence	Duration of Internet use/Frequency of Internet use/Hours spent a day on the Internet/Uninterrupted time spent on the Internet
Perceived social support by parents/Perceived social support	Place of access to the Internet
Adolescent rebelliousness/Adolescent problems and coping methods/Behavioral disorder symptoms/Strengths and difficulties	Age of introduction to the Internet/Age of first Internet use
Personality types/Personality traits	Social media usage habits
Neuroticism	
Autistic temperament traits/Temperament traits	
Sense of positive control	
Psychological autonomy/Social-emotional health/Psychological robustness/Psychological resilience	
Psychological symptoms/Mental disorders	
Rumination level	
Social anxiety/Anxiety	
Social phobia	
Fear of missing out in social environments	
Feelings of guilt and shame	
Constant anger/Aggression	

Physiological	Neck pain/ Physical complaints (e.g. pain in back, lower back, head, hands, wrists, arms, eyes) Physical activity Smoking Sleep quality/Insomnia/Daytime sleepiness Body weight Eating habits Exhaustion	Relationships/Skills	Peer bullying/Cyber bullying Dissociative experiences Parental attitudes/Dysfunctional family Perceived parental psychological control Parental relations/Peer relations/Loneliness/ Having a romantic partner Marital accord Negative daily life events Communication skills/Negative social skills/ Negative social behaviors Problem solving skills/Conflict resolution approach/ Dysfunctional ways of coping/ The need to think and express feelings Quality of life/Low quality of life/Life satisfaction/ Satisfaction with values and life Time management skills
Other	Academic achievement/Low academic achievement/Grades/ Grade point average/Academic procrastination Confidential information management Knowledge of cyber crimes Internet enjoyment Cyber victimization Purpose of Internet use	Demographic	Family structure/Divorced parents/Parents alive Father’s educational attainment Gender Occupation/Parental occupation School level/Grade/Type of school Age High income/Income level

Table 3 presents the variables found to be associated with Internet addiction, divided into the two categories of internal and external variables. The internal variables were further divided into individual, physiological and other subcategories; and the external variables into objects, relationships/skills, and demographics subcategories.

**Table 4**

*Variables not Found to be Associated with Internet Addiction*

	<b>Internal Variables</b>		<b>External Variables</b>
Individual	Level of perceived social support Attachment styles/Paternal attachment style Self-esteem Self-sufficiency/Level of perceived social competence Mental issues/Depression Shyness	Objects	Number of books at home Duration/frequency of Internet use
Physiological	Body mass index Nicotine addiction Obesity Smoking/drinking/substance use	Relationships/Skills	Parental attitudes Sensitivity to cyber-bullying Loneliness Life satisfaction
Other	Academic performance Level of physical activity Being a licensed athlete School achievement	Demographic	Parental educational attainment Monthly income/SES Gender Number of siblings Grade Age

Table 4 presents the variables not found to be associated with Internet addiction, divided into the two categories of internal and external variables. Internal variables were further divided into individual, physiological and other subcategories; and external variables into objects, relationships/skills, and demographics subcategories.

**Table 5**

*Variables Found to Vary Significantly with Internet Addiction*

<b>Internal Variables</b>		<b>External Variables</b>	
Individual	Satisfaction with peer relations	Objects	Ownership of a computer/Having a computer at home/Having access to the Internet
	Perceived parental attitudes		Purpose of Internet use
	Attachment style		Duration/frequency of Internet use/Time spent per day on the Internet
Physiological	Anxiety	Relationships / Skills	Type of games played
	Feelings of loneliness		Accessing gaming and educational web sites
	Headaches, blurred vision, hearing difficulties		Social media usage habits/Social media use/Frequency of Facebook use/Having a social media account/The most frequently used social network
	Body mass index		Spending time with family
Other	Habitual consumption of fast-food	Demographic	Family relations
	Smoking, drinking		Relations with teachers
	Grades/ academic achievement		Romantic relationship
	Perceived academic achievement		Family income level/Monthly income
	Mother's level of participation in sports		Mother's level of educational attainment/Parental educational attainment
Exercise	Father's occupation/ Father's age		
			Gender
			Marital status
			Type of school/Grade/Major/Educational attainment
			Age

Table 5 presents variables found to vary significantly with Internet addiction, divided into the two categories of internal and external variables. The internal variables were further divided into individual, physiological and other subcategories; and the external variables into objects, relationships/skills, and demographics subcategories.

Table 6 presents the variables found not to vary significantly with Internet addiction, divided into the two categories of internal and external variables. The internal variables were further divided into individual, physiological and other subcategories; and the external variables into the objects, relationships/skills, and demographics subcategories.

The prevalence of Internet addiction reported in graduate theses written in Turkey on Internet addiction varies between 0.2% and 25.8%. The prevalence of Internet and social media addiction was reported to be 21.8%, risky/addictive Internet use to be 20%, problematic Internet use to vary between 2.1% and 7.1%, pathological Internet use to vary between 0.66% and 1.4%, gaming addiction to be 3%, and online gaming addiction to be 1.8%. Some of the studies, on the other hand, identified no participants with Internet addiction or pathological Internet use.



**Table 6***Variables Found not to Vary Significantly with Internet Addiction*

	<b>Internal Variables</b>		<b>External Variables</b>
Individual	Attachment styles ADHD types	Objects	Time spent a day on the Internet Setting in which social media is used Having a computer at home
Physiological	Smoking Perceived weight issues	Relationships/Skills	Parental attitudes Supervision of internet use
Other	Academic procrastination Academic achievement Reason for exercising Purpose of Internet use	Demographic	Family structure/Parents together/Marital status/Relationship status Parental educational attainment Gender Parents' occupation Parents'/Mother's employment status Educational attainment Income level Employment status Number of siblings School level/Grade Age

Theses on Internet addiction identify adolescents with ADHD, people with ADHD, obese individuals and men as the groups at most risk. The risk factors related to Internet addiction, on the other hand, included parental attitudes, weak social responsiveness, Internet use from an early age onwards, consumption of energy drinks, being diagnosed with a psychiatric condition, having an Internet connection at home, divorced parents, using a computer to access the Internet, first Internet use at age 10 or younger, using the Internet within one hour of waking up in the morning, spending an average of 2 hours or more on the Internet on a daily basis, not limiting one's Internet use and the presence of social phobia. The theses examined report that higher levels of Internet use are associated with lower levels of self-esteem and emotional intelligence, and with higher levels of pathological Internet use, social anxiety, loneliness, social phobia, depression, perceived social loafing and educational attainment. The most common words and phrases encountered in the titles of theses on Internet addiction were depression, loneliness, social support, self-esteem, obesity, adolescents, students, parental attitudes, attention deficit, academic (achievement/ motivation/ procrastination/ performance), attachment, life, gaming and prevalence.

Higher levels of Internet addiction are associated with higher levels of tendency toward violence, anger, aggression, hostility, eating addiction, depression, depressive tendencies, loneliness and psychological resilience, and with lower levels of academic achievement, life satisfaction and self-esteem. Moreover, higher levels of Internet addiction are associated with lower scores on the exploitativeness/entitlement dimension of narcissism, and higher scores on the leadership/authority dimension. Higher levels of problematic Internet use are associated with lower levels of problem-solving skills, perceptions and the adaptability of the ego functions. Higher levels of Internet addiction are associated with higher levels of parental educational attainment, the variety of games played on the Internet, loneliness, household income and social appearance anxiety, and with lower levels of physical activity. Moreover, higher levels of Internet addiction were associated with younger age and lower levels of academic achievement.

### **Discussion, Conclusion and Recommendations**

There is an increasing number of studies conducted in Turkey on the subject of Internet addiction. Conducting studies on Internet addiction would serve to draw attention to the issue so that the necessary measures can be taken. This study aims to evaluate the graduate theses conducted to date in Turkey on Internet addiction. This study makes use of a document analysis, as a qualitative research method. The sampling criterion used was that the theses had to be graduate theses on Internet addiction, and archived by the NTC of the Turkish Council of Higher Education. For the in-depth analysis, a total of 279 theses on Internet addiction identified in the NTC archive were included in the study. Only the abstracts were included in the analysis, as time limitations prevented scrutiny of the entire texts of the theses. A search of the NTC website was conducted using the search term “Internet bağımlılığı” in all fields (title, subject, index terms and abstract) and in all thesis types. The search turned up a total of 279 master’s, PhD and medical specialty theses on Internet addiction.

A total of 279 theses written on Internet addiction were examined, of which 74.9% were master’s theses, 46% were written in graduate schools of social sciences, 46.9% were conducted in the Marmara region and 95.4% used quantitative research methods. The findings revealed an increase in the number of theses written over the years. The smaller number of theses on Internet addiction in 2019 when compared to 2017 and 2018 may be attributed to the lag between the completion of a thesis and its inclusion in the NTC database, which can take some time.

Moreover, given that most theses on Internet addiction were master’s theses written by young researchers, a larger number of studies on the topic can be expected in the future. Internet addiction relates to multiple academic disciplines, but the treatment of the addiction is of particular concern in health sciences. That said, there were few medical specialty theses on Internet addiction, indicating that more studies are needed in health-related fields, including medical specialty theses. The number of PhD dissertations on Internet addiction was also small when compared to the other types of theses, which may be attributed to the fact that PhD programs take longer to complete, and there may be ongoing researches at the time of the writing of this article. As is the case with medical specialty theses, more studies on Internet addiction at a PhD level are needed. Moreover, according to NTC data, a much greater number of master’s theses were completed between the years 1983 and 2012 compared to PhD dissertations and medical specialty theses. For example, there were a total of 25,813 master’s theses completed in 2012, compared to 4,506 PhD dissertations and 4,228 medical specialty theses (Çetinsaya, 2014). This may be another reason why most graduate theses on Internet addiction are master’s theses.

The theses on Internet addiction were written to fulfill degree requirements in a large number of programs in social, natural, educational and health sciences. This finding shows that “Internet addiction” is a multi-dimensional topic that concerns many disciplines, and one that can be approached from different perspectives. A plurality of these theses were written in social sciences programs, most likely because “Internet addiction” is a natural area of study for the behavioral sciences, which deal with human behavior and social phenomena. Over the years, many different concepts have been used to describe Internet addiction, and many studies have been conducted in international literature diagnosing Internet addiction, and developing criteria for diagnosis (APA, 2013; WHO, 2019; Young, 1999). Furthermore, many relational and experimental studies have been conducted at the stage of identifying criteria for diagnosis, as well as at later stages, exploring the causes and symptoms of Internet addiction. Studies providing definitions of Internet addiction, and identifying the symptoms, causes and diagnosis of Internet addiction are followed by studies of treatments (Murali and George, 2007; Öztürk et al., 2007). More studies are needed on the prevention and treatment of Internet addiction, as well as non-pharmacological approaches to treatment, although health sciences programs had the smallest number of theses written on this topic, underlying the need for more studies in this field in particular. For this reason, it is recommended that researchers conduct studies on the prevention of internet addiction and the treatment of internet addiction.

Research is defined as a rigorous and careful examination of a topic (Glesne, 2014), in that rigor and care are needed in a research design, similar to other stages of the research process. At this stage, researchers decide which design to employ in their study, and most of the theses examined in the present study opted for a quantitative design rather than other approaches. Positivism has been the dominant

approach in the development of social sciences (Kuş, 2007), and has been defined as “a positive approach similar to natural sciences, aiming to unearth reliable knowledge with strong foundations needed to bring about positive change in the social world” (O’Reilly, 2005) that has been adopted by many social scientists in their studies (Glesne, 2014). The positivist approach is reflected in the use of quantitative designs in social sciences research projects (Kuş, 2007). A plurality of the theses examined in the present study were written within programs offered by social sciences graduate schools. The dominance of quantitative designs in the theses on Internet addiction may be attributed to the strong preference for quantitative designs in social sciences in general.

Most of the theses examined in the present study involved adolescents as the participants, which is understandable, given that Internet addiction is more common among adolescents (Chirita, Chirita, Stefanescu, Ilinca and Chele, 2007; Lin and Tsai, 2002). Behavioral addictions (e.g. internet, gaming, gambling) begin during childhood and adolescence (Derevensky, Hayman and Gilbeau, 2019). That said, it also means that other age groups may have been overlooked. As such, there is a relative lack of studies on Internet addiction in early childhood and among children with disabilities, the long-term hospitalized, people with chronic illnesses, people in specific occupations, pregnant women, retired people and the unemployed, among others, which constitutes a shortcoming in the current body of literature in this field. Internet addiction is not limited to adolescents, and affects more than an individual’s school life. Internet addiction is seen also among adults, and can also affect one’s working and social lives (Young, 2007). For example in one study, prevalence rate of internet addiction in healthcare professionals (n=1818) was 9.7% (Buneviciene and Bunevicius, 2021). As such, more studies of Internet addiction should be conducted with different types of participants.

The structure of the Turkish language makes it an ideal language for scholarly works (Vargelen, 2012), although a distinction needs to be made between the teaching of a foreign language and education conducted in a foreign language. The small number of theses written in foreign languages is only to be expected, given the limited number of universities in Turkey offering education in a foreign language.

As of 2013, 68.8% of master’s students and 69% of PhD students in Turkey are enrolled in programs offered by universities in the Marmara and Central Anatolia regions (Çetinsaya, 2014). Accordingly, the finding that most theses on Internet addiction were written in universities located in the Marmara and Central Anatolia regions is consistent with the geographical distribution of students. Among the public universities, those offering the largest number of places to graduate students are found in the larger cities (Çetinsaya, 2014). Most graduate theses on Internet addiction were thus written in the cities with the largest populations and those with the largest numbers of universities.

The theses examined in the present study report a prevalence of technology-related addictions of between 0.2% and 25.8%. The variance in the reported prevalence rates can be attributed to the measurement instruments used to measure Internet addiction, the participant characteristics, the timing and location of the measurement, and the methods of calculation. In addition, given that technology keeps changing, some of the variance may be attributed to differences in access to Internet-enabled devices and frequency of use. However, according to a study in which a systematic review and meta-analysis of the epidemiology of internet addiction was conducted, the prevalence of internet addiction was higher than other addictions or disorder (e.g. gaming disorder) (Pan, Chiu and Lin, 2020).

The most common variables mentioned in the titles of theses on Internet addiction were those related to depression, loneliness, social support, self-esteem, obesity, adolescents, students, parental attitudes, attention deficit, academic life, attachment, life, gaming and prevalence. In another review of studies on Internet addiction in Turkey, depression, social support, academic achievement and family relations were found to be the most commonly studied variables (Boyacı, 2019).

Studies on internet addiction have generally focused on specific issues such as depression, loneliness, social support, self-esteem. However, internet addiction have associated with non-suicidal self-injury (Tang et al., 2020). For this reason, internet addiction has a legal dimension. Studies on internet addiction should also be considered from a legal perspective. In addition, the comorbidity of internet addiction with the other addiction such as alcohol, drug and cigarette addiction can also be examined by researchers.

Internet, electronic devices and internet-based technologies have brought significant benefits to internet users. However, increasing use of Internet is associated with increasing number of people experiencing problems (WHO, 2014). Internet addiction is a global health problem (Kuss, Kristensen and Lopez-Fernandez, 2021). Hence, it needs to be worked at municipal, global, national and regional levels.

The variables found to be associated with Internet addiction by the largest number of theses were depression, anxiety, attachment, gender and time spent on the Internet. The variables found to be unassociated with Internet addiction by the largest number of theses were gender and age. The variables found to vary significantly with Internet addiction by the largest number of studies were gender, grade and income. The variables found not to vary significantly with Internet addiction by the largest number of theses were gender, parental educational attainment, income and age. The theses sometimes reported conflicting findings. For example, the variables found to be associated or to vary significantly with Internet addiction in one thesis were not found to be so in another thesis. These differences may be attributed to many factors, including the rapid technological advances. Each new generation grows up with a different technology, and changes that took place over two or three decades in the past now take five to ten years. The Internet is open to constant change, and technology keeps advancing, meaning that the same technology may have different effects on users today when compared to five or ten years ago, with different indicators, problems and relationships. Today, we can access the Internet through many devices, not just through computers, and these factors are probably the main reason behind the different results reported by the theses. These factors also underline the importance of up-to-date data in studies on behavioral addictions, including Internet addiction. Hence, longitudinal studies are needed to determine variables associated with Internet addiction.

This study has focused on Internet addiction, as examined in graduate theses written in Turkey, but has also made an examination of the theses themselves. It was found that the findings reported in some of the theses may have been affected by the mistakes made by the researchers. Notable mistakes included the following: administering scales that are inappropriate for the age group of the participants; making causal arguments based on correlations; failure to mention the prominent findings of the study in the abstract; use of indirect tools of measurement, even though direct measurement is possible (e.g. using the food addiction scale as an indicator of obesity instead of body mass index), inconsistencies between the terms used in the title and the body of the thesis, and failure to describe the participant characteristics.

This study examined all of the graduate theses on Internet addiction conducted in Turkey to date. Repeating this study at regular intervals would make it possible to assess the progress of studies into Internet addiction over time. The findings of this study are limited to the graduate theses included in the NTC database.

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## **Appendix A.**

Thesis Conducted in Turkey on Internet Addiction (2003-2019).