

# Examination of the Predictive Effect of Attachment Styles and Loneliness Levels on Internet Addiction of University Students

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## Abstract

Nowadays, university students tend to spend more time in the virtual world and virtual friendships, which has caused them to create changes in their socialisation and interaction habits despite the virtual crowds, thus causing them to become lonely. It is thought that this situation observed in university students may also be effective in increasing the tendency towards attachment and technology use. Based on this idea, this study aims to examine the predictive effect of attachment styles and loneliness levels of male university students on internet addiction. The study was conducted with male students attending universities in Konya province, and 354 male students (61.6% associate degree, 38.4% undergraduate) attending universities in Konya who wanted to participate in the study were included. Research data were collected with general information form, Young internet addiction scale, three-dimensional attachment scale, UCLA loneliness scale. The data obtained in the study were analysed using SPSS (Statistical Package for Social Sciences) software. According to the results of the study, a positive and low level relationship ( $p<0.01$ ) was found between the loneliness levels of the university students participating in the study and internet addiction ( $r=.275$ ) and avoidant attachment ( $r=.329$ ), a positive and moderately significant relationship ( $p<0.01$ ) was found between anxious-ambivalent attachment ( $r=.446$ ), while a negative and moderately significant relationship ( $p<0.01$ ) was found between loneliness and secure attachment ( $r=-.338$ ). While a positive and low level significant relationship ( $p<0,01$ ) was found between internet addiction and avoidant attachment ( $r=.277$ ) and anxious-ambivalent attachment ( $r=.301$ ), a negative and low level significant relationship ( $p<0,01$ ) was found between internet addiction and avoidant attachment ( $r=.277$ ) and anxious-ambivalent attachment ( $r=.301$ ), a negative and low level significant relationship ( $p<0,01$ ) was found between internet addiction and secure attachment ( $r=.241$ ). The results of the study revealed that attachment styles and loneliness levels of university students have a predictive effect on internet addiction.

**Keywords:** Internet addiction, attachment styles, loneliness, pandemic process

## Bağlanma Stilleri ve Yalnızlık Düzeylerinin Üniversite Öğrencilerinin İnternet Bağımlılığı Üzerindeki Yordayıcı Etkisinin İncelenmesi

### Öz

Üniversite öğrencileri günümüzde daha çok sanal alemde vakit geçirmeye ve sanal arkadaşlıklara yönelmekte, bu durum onların sanal kalabalıklara rağmen sosyalleşme ve etkileşim alışkanlıklarında değişiklikler yaratmasına, dolayısıyla yalnızlaşmalarına neden olmuştur. Üniversite öğrencilerinde gözlenen bu durumun bağlanma ve teknoloji kullanımına yönelimi artırmada da etkili olabileceği düşünülmektedir. Bu düşünceden hareketle araştırmada üniversitede okuyan erkek öğrencilerin bağlanma stilleri ile yalnızlık düzeylerinin internet bağımlılığı üzerindeki yordayıcı etkisinin incelenmesi amaçlanmaktadır. Çalışma Konya ilindeki üniversitelere devam eden erkek öğrencilerle gerçekleştirilmiş, çalışmaya katılmak isteyen Konya'daki üniversitelere devam eden 354 erkek öğrenci (%61,6'sı ön lisans, %38,4'ü lisans) dahil edilmiştir. Araştırma verileri genel bilgi formu, Young internet bağımlılığı ölçeği, üç boyutlu bağlanma ölçeği, UCLA yalnızlık ölçeği ile toplanmıştır. Araştırmada elde edilen veriler SPSS (Statistical Package for Social Sciences) programı kullanılarak analiz edilmiştir. Araştırma sonuçlarına göre, araştırmaya katılan üniversite öğrencilerinin yalnızlık düzeyleri ile internet bağımlılığı ( $r=.275$ ) ve kaçınan bağlanma arasında ( $r=.329$ ) pozitif ve düşük düzeyde ilişki ( $p<0,01$ ), kaygılı-kararsız bağlanma arasında ( $r=.446$ ) pozitif ve orta düzeyde anlamlı ilişki ( $p<0,01$ ) bulunurken, yalnızlık ile güvenli bağlanma arasında ( $r=-.338$ ) ise negatif ve orta düzeyde anlamlı ilişki ( $p<0,01$ ) saptanmıştır. Araştırmaya katılan öğrencilerin internet bağımlılığı ile kaçınan bağlanma ( $r=.277$ ) ve kaygılı-kararsız bağlanma arasında ( $r=.301$ ) pozitif ve düşük düzeyde anlamlı ilişki bulunurken ( $p<0,01$ ), internet bağımlılığı ile güvenli bağlanma arasında ( $r=.241$ ) ise negatif ve düşük düzeyde anlamlı ilişki ( $p<0,01$ ) bulmuştur. Araştırma sonuçları üniversite öğrencilerinin bağlanma stilleri ve yalnızlık düzeylerinin internet bağımlılığı üzerindeki yordayıcı etkisini olduğunu ortaya koymuştur.

**Anahtar kelimeler:** İnternet bağımlılığı, teknoloji, gençlik, ergenlik, bağlanma stilleri, yalnızlık.

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## INTRODUCTION

The Internet is used to obtain information continue education and training activities and have fun and enjoyable time. While information and communication technologies are one of the effective ways of accessing information, they are also seen as a means of entertainment and leisure for young people and adolescents. There are results (Günel, Turhal & İmal, 2011) showing that young people and adolescents use the internet mostly to follow social media and play online games. According to TÜİK data, it was determined that the internet usage rate among individuals in the 16-74 age group was 79.0% in 2020 and increased to 82.6% in 2021 (TÜİK, 2021). Studies emphasize that there is a high rate of both internet and gaming disorders in adolescents and young adults (Gentile, 2009; Kaess et al., 2014; McGonigal, 2011; Noyan et al., 2015; Tarhan and Nurmedov, 2013; UNICEF, 2017; Yalçın- Irmak & Erdoğan, 2016; Kadan & Aral, 2021). While the use of technological devices provides some convenience, excessive use can lead to technology addiction. It is claimed that widely used technological devices or the internet alone are not effective in addiction and that applications on technological devices or the internet are more effective in addiction (Aral & Keskin, 2018; Young, 1999). Kwon et al. (2013) defined technology addiction as excessive use of the internet and technological devices, inability to satisfy the desire to use these tools, neglect of activities due to excessive use, damage to social relationships due to excessive use, using it as a means of escape from negative emotions and life stress, reducing use and They defined it as having problems stopping use, being tense and angry when use is not possible, and lying about the duration and amount of use.

Along with the fun side of technology, emotional needs, attachment patterns, socialization needs, loneliness, peer influences, desire to learn and spend free time, and risk-taking behaviors may be effective in the formation of addiction (Günay, 2011; Irmak and Erdoğan, 2015; Odacı and Çıkırıkçı, 2017; Shaw and Black, 2008). Regardless of the reason, loss of control as a result of addiction (Arslan- Durna, 2015; Gonzalez- Bueso et al., 2018); antisocial behaviors (Adanır et al., 2016; Ergül, 2015; Stockdale and Coyre, 2018; Stavropoulos et al., 2015); physical health problems (Han et al., 2010; Kuzu et al., 2008); obesity (Akçay and Özcebe, 2012); musculoskeletal problems (Mustafaoğlu et al., 2017); Problems such as poor social relationships (Hyun et al., 2015) and depressive symptoms (Han and Renshaw, 2012; Musluoğlu, 2016) arise. Attachment patterns, which are among the factors that are effective in the formation of addiction, start from infancy and affect the whole life. According to attachment theory, while the primary caregiver or parent meets children's physical needs, a social and psychological bond is established between the child and the parent or primary caregiver (Bolwlby, 2003). If this bond is secure, it may cause individuals to experience fewer psychological problems, and if it is insecure, it may cause individuals to experience more psychological problems (Vertue 2003; Hamarta 2004; Bar-Haim, Dan Eshel & Sagi-Shwartz, 2007). Individuals' attachment patterns and the efforts of adolescents and young people to live an independent life from their families in social environments increase their tendency towards internet addiction and their level of loneliness (Damarlı, 2006). Loneliness, defined as emotional emptiness reactions accompanying the individual's lack of close and social relationships (Asher & Paquette, 2003; cited in Yıldız & Duy, 2014), is caused by the lack of a social communication network or not being a member of a group where common interests and activities are shared and is intense during adolescence. It is experienced in some way (Duy, 2003). It is emphasized that adolescents and young people who are disconnected from social life and have problems with skills such as self-expression, developing a positive personality, and reaching psychological satisfaction live in the virtual world, which is far from reality (Zorbaz, 2013; Öztapak, 2018), but it seems that there are no studies that demonstrate its predictive power. It is considered important to take precautions by examining the internet addiction levels, attachment styles and loneliness prediction power of individuals who use the internet or technological tools excessively. From this point of view, the aim of the study was to examine the predictive power of university students' internet addiction levels, attachment styles and loneliness.

## METHOD

In this section, the research model, study group, data collection tools, ethical dimension, data collection method and evaluation and analysis of the data are included.

### Model of the Research

The research is a study of the relational screening model. Among the general scanning model types, the relational scanning model; It is a research model that aims to determine the existence and/or degree of co-variation between two or more variables (Fraenkel & Wallen, 2009; Karasar, 2005).

### Working Group of the Research

The study group consists of male university students who studied at public and private universities between May 2021 and October 2021 and agreed to participate in the research voluntarily. A total of 354 male university students who voluntarily participated in the study and filled out the scales were included. Of the 354 male university students participating in the research, 61.6% are associate degree students and 38.4% are undergraduate students. The study group consists of male university students who studied at public and private universities between May 2021 and October 2021 and agreed to participate in the research voluntarily. A total of 354 male university students voluntarily participated in the study and filled out the scales were included. Of the 354 male university students participating in the research, 61.6% are associate degree students and 38.4% are undergraduate students.

Gender	Number of Participants	Total Number of Participants	Percentage %
Male	354	354	100

### Data Collection Tools

The study used the Internet Addiction Scale, Three-Dimensional Attachment Scale, and UCLA Loneliness Scale as data collection tools.

#### Internet Addiction Scale

Dr. It is a 20-question self-assessment scale created by Kimberley Young (1996), adapted from the "Pathological Gambling" criteria of DSM-4. The Internet Addiction Scale (IAD), adapted to Turkish by Balta et al. (2008), is a Likert-type scale and each item is scored between 0-5 points. Those who score 80 or more in total on the scale are defined as internet addicts (IB), those who score between 50-79 are defined as people who frequently have problems with the internet in their daily lives and have difficulty controlling themselves, and they are called risky internet users (RIK), and those who score 49 and below are defined as people who frequently have problems with the internet in their daily lives and have difficulty controlling themselves. Those who score are defined as average internet users (AUI). In the adaptation study to Turkish, the internal consistency coefficient of the data obtained with the scale, calculated by Cronbach's alpha test, was found to be 0.895, and the calculated values showed that the scale is a valid and reliable scale (Balta & al., 2008).

#### Three-Dimensional Attachment Scale

The scale was developed by Erzen (2015) and consists of three subscales and 18 items measuring secure, avoidant and anxious-ambivalent attachment styles. Experts' opinions were used in the content and language validity studies of the scale, and using the Cohen Kappa agreement index, agreement index scores of .87 for language and meaning validity and .72 for content validity were obtained. Confirmatory and exploratory factor analyses were used for construct validity, and three dimensions emerged: secure, avoidant, and anxious-indecisive. Confirmatory factor analysis results showed that the model was compatible (GFI=.93, AGFI=.90, RMSEA=.05,  $\chi^2/sd=2.48$ , CFI=.90). According to the sub-dimensions of the scale, the internal consistency coefficient was found to be .69 for secure attachment style, .80 for avoidant attachment style and .71 for anxious ambivalent attachment style.

#### UCLA Loneliness Scale

Validity and reliability studies of the scale in our country were conducted by Demir (1989). In this study, the Cronbach alpha internal consistency coefficient regarding scale's internal consistency was calculated as .96. The test-retest reliability coefficient of the scale, administered at five-week intervals, was found to be .94.

#### Ethical Dimension

Permission to use the Internet Addiction Scale adapted to Turkish by Balta et al. (2008), the Three-Dimensional Attachment Scale developed by Erzen (2015) and the UCLA Loneliness Scale adapted by Demir (1989) were received via e-mail from the researchers who own the scale. Additionally, ethical approval was received from KTO Karatay University Publication Ethics Committee. Finally, informed consent was obtained from the university students participating in the study.

### Data Collection Method

Data was collected via Google Forms. In this regard, the items of the Internet Addiction Scale, Three-Dimensional Attachment Scale and UCLA Loneliness Scale were transferred to the electronic environment via Google Form, one of the online data collection tools. The data of the research was collected between May 2021 and October 2021. Participation in the research was provided voluntarily. Participation in the research took approximately 15-20 minutes.

### Evaluation and Analysis of Data

The SPSS package program was used to analyze the data. Mean and standard deviation were used when analyzing the data. The assumption of normality regarding the study's variables was examined using skewness and kurtosis values. The fact that kurtosis and skewness values are between +2 and -2 indicates that the data is normally distributed (Tabachnick and Fidell, 2013). As a result of the analysis, it was seen that the data was normally distributed. In the first stage of the analyses whether the scale scores were reliable or not was examined. Cronbach's Alpha internal consistency coefficients for the scale scores were found in the UCLA loneliness scale ( $\alpha=.889$ ), the Young Internet addiction scale ( $\alpha=.885$ ), the attachment styles scale's secure attachment ( $\alpha=.628$ ), avoidant attachment ( $\alpha=.882$ ) and It was found to be sufficiently reliable for the anxious-ambivalent attachment ( $\alpha=.785$ ) subscales. Pearson Correlation analysis was used to examine the relationships between scale scores, and Regression analysis was used to examine whether the scales predicted each other.  $P<0.005$  was accepted as a statistical significance value.

## FINDINGS

The results obtained from the study examining the predictive power of university students' internet addiction levels, attachment styles and loneliness are given below.

The students participating in the research had low levels of internet addiction (Mean: 28.22) and loneliness (Mean: 38.50), secure attachment (Mean: 19.43), avoidant attachment (Mean: 15.08), and anxiety. It was determined that the levels of ambivalent attachment (Mean: 16.91) were at a medium level.

Table 1. Pearson Correlation Analysis Results for the Relationships Between the Scale Scores of the Students Participating in the Research

	UCLA loneliness	Internet addiction	Secure attachment	Avoidant attachment
Internet addiction	,275**	-		
Secure attachment	-,338**	-,241**	-	
Avoidant attachment	,329**	,277**	-,213**	-
Anxious, indecisive attachment	,446**	,301**	-,095	,454**

\*\* $p<0,01$

When the table is examined, it can be seen that the loneliness levels of the students participating in the study are positively and lowly related to internet addiction ( $r=.275$ ), avoidant attachment ( $r=.329$ ), positively and moderately between anxious ambivalent attachment ( $r=.446$ ), and secure attachment ( $r=.446$ ).  $r=-.338$ , there is a negative and moderately significant relationship ( $p<0.01$ ). There was a positive and low significant relationship between the internet addiction of the students participating in the research and avoidant attachment ( $r=.277$ ) and anxious ambivalent attachment ( $r=.301$ ), and a negative and low significant relationship between secure attachment ( $r=.241$ ) ( $p<0, 01$ ) is seen to be present.

Table 2. Simple Linear Regression Analysis Results for Internet Addiction Predicting Loneliness

Variable	B	SE	B	t	P
Stable	29,088	1,835		15,849	,000**
Internet addiction	,334	,062	,275	5,367	,000**
$r=,275; r^2=,073; F(1, 352)=28,803; p=,000**$					

\*\* $p<0,01$

When the table is examined, it is seen that internet addiction predicts loneliness at a level of 7.3% and at a statistically significant level ( $r^2=.073; p<0.01$ ).

Table 3. Simple Linear Regression Analysis Results for Internet Addiction Predicting Avoidant Attachment

Variable	B	SE	$\beta$	t	p
Stable	10,452	,896		11,670	,000**
Internet addiction	,164	,030	,277	5,403	,000**
$r = ,277; r^2 = ,074; F(1, 352) = 29,198; p = ,000**$					

\*\*p<0,01

When the table is examined, it is seen that internet addiction predicts avoidant attachment at a level of 7.4% and at a statistically significant level ( $r^2 = .074; p < 0.01$ ).

Table 4. Simple Linear Regression Analysis Results for Internet Addiction Predicting Anxious Ambivalent Attachment

Variable	B	SE	B	T	P
Stable	11,991	,869		13,804	,000**
Internet addiction	,174	,029	,301	5,929	,000**
$r = ,301; r^2 = ,088; F(1, 352) = 35,151; p = ,000**$					

\*\*p<0,01

When the table is examined, it is seen that internet addiction predicts anxious ambivalent attachment at a level of 8.8% and at a statistically significant level ( $r^2 = .088; p < 0.01$ ).

## DISCUSSION

In the study, which aims to examine the predictive effect of attachment styles and loneliness levels on internet addiction of university students, it is seen that attachment styles and loneliness levels have a predictive effect on internet addiction. In the literature reviews conducted before the research design (Morahan-Martin and Schumacher, 2000; Balta and Horzum, 2008; Kelleci et al., 2009; Gündeç, 2009; Odacı and Kalkan, 2010; Esen and Siyez, 2011; Liberatore et al., 2011; Gençer 2011; Üneri and Tamdır, 2011; Durkee et al., 2012; RTÜK 2012; Çuhadar 2012; Sırakaya and Seferoğlu, 2013; Eroğlu, Pamuk and Pamuk, 2013; Akdağ et al., 2014; Aksoy 2015; Şahin 2016; Kabaklı-Çimen, 2018) in the gender variable regarding internet addiction, it was observed that male students had a higher level of internet addiction than female students. Based on the results of this research, this study aimed to carry out a more in-depth research design for male students studying at the university. Considering the results of the research conducted in line with this goal, it is seen that internet addiction predicts secure attachment, avoidant attachment and loneliness at a statistically significant level. Additionally, it was determined that internet addiction predicted anxious-ambivalent attachment at a statistically significant level. One of the concepts related to internet addiction is attachment, and it is stated that, as in many behavioral addictions and substance addictions, the level of internet addiction is closely related to the individual's attachment styles (Chang et al., 2015; Ronnie & Heather, 2016). It is stated that individuals with a secure attachment style are willing to establish and maintain relationships because they perceive themselves as lovable and others as reliable and consistent (Bartholomew & Shaver, 1998; Sümer & Güngör, 1999). In other words, these people's socialization levels and social skills may have improved. Individuals with a secure attachment style can establish quantitatively and qualitatively satisfying relationships because their social skills are developed and they perceive themselves as lovable and others as reliable (Birgün & Çelik 2021). In this study, the result that internet addiction predicts secure attachment, avoidant attachment and loneliness at a statistically significant level is integrated with this idea.

In the results of the research regarding insecure attachment styles, it was determined that there was a relationship between internet addiction and insecure attachment styles. In studies supporting this result and conducted with large samples in the Far East (Li & Wu, 2017; Min & Lin, 2011), it was found that there is a relationship between insecure attachment and internet addiction. In these studies, it has been observed that the internet emerges as an attachment figure or as an environment where new attachment figures are sought. In addition, according to some studies, it is stated that internet addiction is only associated with anxious attachment situations, and according to others, it is only associated with avoidant attachment style (Jia & Jia, 2016). On the contrary, studies also show that both styles are related (Schimmenti et al., 2014). In their study, Jia & Jia (2016) found that anxious attachment to parents significantly predicted internet addiction but did not find a significant relationship between avoidant attachment style and internet addiction (Jia & Jia, 2016).

According to research, individuals who are described as internet addicts; Workplace and school performances are negatively affected by this situation, sleep disturbance, a life without the internet seems boring and meaningless, intense loss of willpower, extreme irritability, anxiety and loneliness when deprived of the

internet are observed (Nalwa & Anand, 2003). It is also stated that problematic internet use leads to an increase in pathological thoughts such as obsession, anxiety, depression, hostile, phobic and paranoid thoughts. A study shows that young people and adolescents who exhibit problematic internet use behavior become increasingly lonely and have difficulty establishing face-to-face relationships (Odabaşoğlu et al., 2007). In addition to this, one of the important reasons for the increase in internet usage rates among young people and adolescents is social networks such as Facebook, Twitter and Instagram, which tend to constantly develop and increase their member profiles (Gülbahar, Kalelioğlu & Madran, 2010). In a study, young people under the age of 25 stated that they could abandon their sleep and neglect their social and family relationships to follow social networks, and those of school-age could neglect their academic homework and responsibilities (Ofcom, 2008). Therefore, considering that the people who use these networks the most are young people (Retrevo, 2010), the concept of internet addiction has been the subject of many studies with the increase in the rate of internet use at national and international levels. In the studies conducted, internet addiction; personality traits (Batıgün & Kılıç, 2011; Ekşi, 2012; Shepherd & Edelman, 2005), loneliness (Esen & Siyez, 2011; Mitchell, 2000), aggression and peer pressure (Satan, 2013; Yükselgün, 2008) and cyberbullying (It has been associated with concepts such as Özdemir & Akar, 2011; Ybarra, 2004).

In another study, Young & Case (2004) examined the relationship between internet addiction and individuals' purposes for using the internet, frequency of use, and attitudes, and stated that adolescents' family and friend relationships weaken due to the excessive time they spend on the internet (Morsünbül, 2014). Işık (2007), in his study with 563 university students, stated that the duration and frequency of internet use are gradually increasing.

It is stated that internet addiction is the source of many psychological problems. Young & Rogers (1998) state that as a result of excessive, uncontrolled and irregular use of the internet, psychosocial variables (such as social isolation and depression) and negative consequences occur in school, work and home life (Young & Rogers, 1999). Having a large circle of friends and not feeling lonely is an important factor in a person's happiness (Cheng & Furnham, 2002). Excessive use of the internet and computers causes adolescents to experience loneliness (Çakır & Oğuz, 2017; Yalçınkaya et al., 2021).

While there is a positive and low significant relationship between the loneliness levels of the students participating in the research and their internet addiction levels and their avoidant attachment levels, there is a positive and moderate significant relationship between the loneliness level and the anxious-ambivalent attachment level and a negative and moderate significant relationship between the loneliness level and the secure attachment level. There is a significant relationship at the level. There is data in the literature that the lack of social support increases the susceptibility to internet addiction (Yeh & colleagues, 2008). It is stated that individuals who experience obstacles in their social relationships often resort to the Internet to rebuild and maintain their personal relationships and replace the Internet with face-to-face communication (Inderbiten, et al., 1997; Kubey, et al., 2001).

Individuals who cannot receive support from the people around them may develop internet addiction to meet their interpersonal relationship needs and create alternative social channels (Papacharissi & Rubin, 2000). At this point, it should not be overlooked that lack of social support may be closely related to loneliness. There are many studies showing that the loneliness scores of individuals with pathological internet use are significantly high (Batıgün & Hasta, 2010; Eijnden, et al., 2008; Erdoğan, 2008; Morahan-Martin & Schumacher, 2000). In the relevant literature, there are research findings showing that loneliness is associated with insecure, indifferent, fearful, obsessive attachment and hopelessness, stress and life satisfaction (Deniz, et al., 2005; Wiseman, et al., 2005; Özkaya, 2017; Satıcı, 2020; Bingül & Çelik 2021).

Having a secure first attachment relationship allows the individual to transition easily to new relationships during adolescence and feel comfortable with new discoveries. In addition to these studies, there are also studies showing that people with insecure attachment (obsessive, dismissive, fearful attachment) have low levels of well-being (Kobak, et al., 1991; Priel & Shamaï, 1995; Kafetsios & Sideridis, 2006; Berber Çelik, 2018). While there is a positive and low significant relationship between the internet addiction levels of the students participating in the research and their avoidant attachment levels and their anxious-ambivalent attachment levels, there is a negative and low significant relationship between their internet addiction levels and secure attachment levels.

Adolescence is seen to be more difficult for individuals with insecure attachment. It is stated that while securely attached adolescents try to solve the problems they encounter instantly, insecurely attached ones face problems. Peer attachment during adolescence is important as it provides support and emotional security to the

individual and sets an example for subsequent relationships (Lee, 2002). The environment of associate degree students studying in regular education complains more about internet use. In addition, they can become more aggressive and hurtful with internet use (Söylemez & Söylemez, 2020).

It appears that attachment styles predict loneliness at a statistically significant level. When the sub-dimensions are examined, it is seen that the biggest effect is in the anxious-ambivalent attachment, secure attachment and avoidant attachment sub-dimensions, respectively. Children and adolescents who have developed a secure attachment can establish relationships easily, show less aggression in their relationships, and cope with stress better (Sroufe, 2005). In the study conducted by Berber Çelik, 2018, as a result of the research, it was found that securely attached students had high psychological well-being levels; Students with obsessive attachment have low levels of psychological well-being. It has been revealed that secure and preoccupied attachment predicts psychological well-being.

In other studies examining whether attachment styles predict loneliness, it is stated that anxious, avoidant and ambivalent attachment styles also predict loneliness (Spence, et al., 2018; Suri, et al., 2019; Şeremet, 2019). Göçener (2010) states that individuals with a fearful attachment style tend to stay distant from close relationships because they fear rejection and do not find other people reliable. When definitions of loneliness are examined, it can be said that deficiencies in social relationships characterize it. Since the fearful attachment style predicts loneliness, which can be explained by the fact that these individuals avoid interacting with others and thus establish inadequate and/or unsatisfactory social relationships, it may be concluded that it predicts loneliness.

It appears that attachment styles predict loneliness at a statistically significant level. When the findings are examined based on of sub-dimensions, it is seen that the biggest effect is in the anxious-ambivalent attachment, secure attachment and avoidant attachment sub-dimensions, respectively. Wei, et al., (2005) observed feelings of depression, loneliness, and shame in insecurely attached college students. In a study, it was stated that insecurely attached individuals experienced more problems in their interpersonal relationships in the future and that adolescents with an insecure attachment style experienced feelings such as antisocial behavior, low self-esteem, difficulty in establishing close relationships, and feelings of loneliness (Cooper et al., 1999).

Ko et al. (2009) found that the triggers of internet addiction are psychological factors such as depression, attention deficit, hyperactivity, social phobia and aggression. In other words, rising internet addiction means that a person moves away from his social environment, becomes isolated, and ultimately weakens his social relationships (Müezzın, 2017). At this point, it is understood that social loneliness is both the cause and the result of internet addiction. As a person becomes lonely, he will turn to the internet, and the more he connects to the internet, the more lonely he will become (Esen, 2010).

## **CONCLUSION AND RECOMMENDATIONS**

According to the results obtained in the study, it was seen that there were significant relationships between the three variables, and attachment styles and loneliness predicted internet addiction significantly and positively. The loneliness and internet addiction levels of the students participating in the research were low, and their secure attachment, avoidant attachment and anxious-ambivalent attachment levels were moderate. It was determined that there was a moderate negative relationship between the level of internet addiction and the level of loneliness, and as the internet addiction levels of university students increased, their loneliness levels decreased.

While there is a positive and low significant relationship between the loneliness levels of the students participating in the research and their internet addiction levels and their avoidant attachment levels, there is a positive and moderate significant relationship between the loneliness level and the anxious-ambivalent attachment level and a negative and moderate significant relationship between the loneliness level and the secure attachment level. There is a significant relationship at the level.

While there is a positive and low significant relationship between the internet addiction levels of the students participating in the research and their avoidant attachment levels and between their anxious-ambivalent attachment levels, there is a negative and low significant relationship between their internet addiction levels and secure attachment levels.

It is seen that internet addiction significantly predicts loneliness, secure attachment, avoidant attachment and anxious-ambivalent attachment.

It appears that attachment styles predict loneliness at a statistically significant level. When the sub-dimensions are examined, it is seen that the biggest effect is in the anxious-ambivalent attachment, secure attachment and avoidant attachment sub-dimensions, respectively.

In line with the results obtained in the research,

- Depending on the results, future studies can be conducted on adolescents with different demographic and cultural characteristics, single siblings and multiple siblings based on loneliness, and family structures with different attachment patterns.

- To strengthen the findings regarding attachment patterns, a different dimension of this research can be conducted on adolescents raised under protection.

- The predictive power of the internet on loneliness and attachment patterns can be studied by conducting similar studies with adolescents growing up in fragmented families and maintaining family integrity.

- Studies can be planned for individuals in different age groups regarding the sub-dimensions of internet addiction and attachment.

- Studies can be conducted on real communication and loneliness levels in the virtual environment.

- Intergenerational studies can be conducted on attachment levels of individuals, focusing on parents and individuals regarding their ability to manage their addictions.

- Educational programs focused on combating internet addiction can be written by experts in the field and applied to adolescents, educators and parents.

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