

# The Roles of Perceived Social Support, Coping, and Loneliness in Predicting Internet Addiction in Adolescents

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## Abstract

The current research aims to examine the roles of perceived social support, coping, and loneliness when predicting the Internet addiction in adolescents. The research participants included 300 high school students, with an average age of 16.49 and SD=1.27, attending schools in a city in Southeastern Anatolian Region during 2015-2016 academic years. Participant adolescents included 180 females (60%) and 120 males (40%). Data collection was conducted through Short Form of Young's Internet Addiction Test, Revised Form of Multi-Dimensional Perceived Social Support Scale, Coping Scale for Children and Youth, and the UCLA Loneliness Scale – Short-Form. Descriptive statistics, Pearson Correlation Coefficient, and Multiple Linear Regression Analysis were used to analyze the research data. Research findings showed that perceived social support from significant other support, loneliness, and cognitive avoidance and problem solving among coping strategies significantly predicted Internet addiction. Family support and friend support as sub-dimensions of perceived social support and assistance seeking and behavioral avoidance among coping strategies were not found to predict Internet addiction. Research findings were discussed based on the relevant literature, interpreted, and suggestions for researchers were put forward.

**Keywords:** Internet addiction, perceived social support, coping strategies, loneliness, adolescents

## 1. Introduction

Internet has been described as a network set among computers, sharing information files and software creation by more than one networks (Özdilek, 2002). Today, this interaction on social media networks, including social relationships, sustaining new and ongoing friendships, with many shared aspects, is experienced through Internet networks (Toprak, Yıldırım, Aygül, Binark, Börekçi & Çomu, 2009). In addition, some problems stemming from excessive Internet use exist. One of those is about Internet addiction. Internet addiction has been described as spending excessive time with the images provided by the computer (Tarhan & Nurmedov, 2011). Young (1996), on the other hand, determined the definition criteria of Internet addiction as follows: 1. mental preoccupation with Internet, 2. need to increase the online time on Internet in order for the individual to be satisfied, 3. failing attempt to decrease Internet use time or to leave Internet use, 4. experiencing deprivation when Internet use is less, 5. being online longer than the initial stage, 6. experiencing problems with school, work, family, and friends due to excessive Internet use, 7. lying about the Internet use time to family, therapist or others around, and 8. using the Internet to avoid problems or to remove negative emotions. In a study examining the Internet addiction levels of high school students, Yılmaz, Şahin, Haseki, and Erol (2014) found that 11<sup>th</sup> grade students had lower scores of Internet addiction than students in other grades and Internet addiction differed based on the purpose of Internet use. The addiction scores of adolescents using Internet for conversation and games were found to be significantly higher than those of adolescents using the Internet for research-homework preparation. Derin (2013) found the Internet addiction of students pessimistic about future higher than that of students optimistic about future. Studies on Internet addiction among adolescents were found to increase in numbers in the relevant literature and those studies emphasized the damages associated with adolescents' excessive use of Internet (Çağır & Güran, 2010; Esen & Siyez, 2011; Yeh, Ko, Wu & Cheng, 2008). Also, individuals not receiving social support from others have been emphasized to use the Internet more often (Lei & Wu, 2007). In terms of the consequences, adolescents' addiction levels may be said to increase based on the increase in time on the Internet and this may lead to many negative consequences.

A variable that could be associated with adolescents' Internet use and addiction is *perceived social support*. An individual experiences various changes during adolescence and peer relations, friendships, and teacher support becomes important during this period. Perceived social support is defined as the social and psychological support that the individual obtains from others (Yıldırım, 1997). Studies conducted have shown that perceived social support had positive social and emotional impact on individuals and individuals unable to receive social support were impacted negatively. Students receiving support from parents, at school, and from teachers were found to have increased positive academic and social performance (Gutman & Midgley, 2000;

Sanders & Herting, 2000). On the other hand, some studies showing increased tendency towards Internet addiction in individuals not receiving adequate social support are available (Esen and Siyez, 2011; Yeh et al., 2008). It was found that individuals receiving inadequate social support from others may have developed Internet addiction through use for satisfying the need for interpersonal relationships and building alternative social connections (Papacharissi and Rubin, 2000). Thus, an individual's Internet time may increase as his/her perceived social support level decreases and this may lead to Internet addiction. Differently, Yüksel and Baytemir (2010) found no significant relationship between the perceived social support from family, friends, and teachers and the purpose of Internet use. However, saving time for assignments, research, and Internet use meant increased perceived social support. Lei and Wu (2007) found that adolescents not having healthy relationships with their parents used the Internet more often and the researchers interpreted this as adolescents' effort to seek emotional support. In another research, Ersun, Şahin-Köze, Muslu, Beytut, Başbakkal, and Conk (2012) found a significant negative relationship between perceived social support and problematic Internet use. Similar research findings indicated that the Internet use led to reduced social relationships and perceived social support (Swickert, Hittner & Harris, 2002). Taçyıldız (2010) stated that adolescents were not able to solve communication and academic achievement problems experienced when social support from families and friends was not available and, thus, that adolescents' Internet use could have increased. Hence, it may be said that perceived social support may be socially and emotionally important in adolescents and it can be influential in reducing Internet addiction.

Another variable that could be associated with Internet addiction seems to be coping. Lazarus and Folkman (1984) described coping as cognitive and behavioral efforts put forward by an individual to manage internal and external desires consuming one's sources and extremely forcing him/her. The purpose of individual's adjustment processes in stressful and threatening situations is to help him/her to re-balance. The reactions associated with coping during such processes were stated to be physiological, emotional, behavioral, and cognitive (Baum, Singer & Baum, 1981; Lazarus, 1991; Şahin, 1994). The Internet and computer also were reported to be available for use to cope with stress. Individuals experiencing constant distress, anxiety, and excitement are stated to spend more time on the Internet or computer. Focusing attention on something else is considered to lower the experience of internal problems or reduce the level of symptoms (Ögel, 2012). A study revealed that Internet addicts had hardships in real life and used dysfunctional coping strategies (Lin & Tsai, 2002). Kim, Lau, Cheuk, Kan, Hui, and Griffiths (2010), in another research, found that Internet addicts could not cope well with stress, went to sleep late, suffered from insomnia, and had high levels of depressive symptoms. Whang, Lee, and Chang (2003) found that Internet addicts used the Internet even more during stress or depression; experienced more loneliness, depressive affect, and compulsive disorder; and had behavioral disorders. Özmutaf, Özgür, and Gökmen's (2008) study revealed that computer use led to tiredness of eyes, rash on eyes, back and neck pain, headache, pain on joints and muscles, tiredness, insomnia, being unable to cope with stress, and putting on weight. Studies showed that coping programs positively affected the Internet addiction. In such a study, Erden and Hatun (2015) found that coping program reduced the Internet addiction. In a similar research, Nedim-Bal and Metan (2015) showed that group psychological counseling and coping programs positively affected Internet addiction in adolescents. Relevant literature indicated that individuals with high levels of Internet addiction were not able to use effective and functional coping strategies and suffered from even more stress.

Another important variable associated with Internet addiction is loneliness. Loneliness has been described as a status, with which the individual is not satisfied, occurring quantitatively or qualitatively in relation to individual's social relationships. Loneliness was stated to happen when there were discrepancies between individual's present social relationship and his/her desired social relationship (Peplau & Perlman, 1982). As a mood including cognitive, affective, and behavioral dimensions, loneliness was stated to develop based on individual's perceptions (Ernst & Cacioppo, 1999). A significant and positive relationship between problematic Internet use and loneliness and social anxiety was found in adolescents (Caplan, 2002). In similar studies, loneliness scores of those individuals using the Internet excessively were found to be higher (Eijnden et al., 2008; Morahan Martin & Schumacher, 2000). Compared to the individuals with lower Internet addiction levels, those with higher levels of Internet addiction were found to play more games on Internet, to have no leisure time, to make virtual friends, and to use the Internet for purposes such as providing emotional support. Also, Internet addicts were determined to be lonelier than the individuals with no Internet addiction (Martin and Schumacher, 2003). Ögel (2012) stated that adolescents, feeling lonely due to experiences of family conflict stemming from various problems and generation gap and due to difficulty making friends and becoming introvert, could become Internet addicts. Tarhan and Nurmedov (2011) found that individuals with high Internet addiction leaned towards escapism, preferred to spend time on Internet, and experienced more loneliness and depressive emotions than individuals with no Internet addiction. Durak-Batıgün and Hasta (2010) found that Internet addicts had higher levels of loneliness than the individuals with no Internet addiction. Koyuncu, Ünsal, and Arslantaş (2012), in their research with elementary and high school students, determined that students using the Internet for homework and research purposes had lower frequencies of Internet addiction and there was a positive

relationship between Internet addiction and loneliness. Studies conducted also showed a positive relationship between Internet addiction and loneliness. Thus, it may be said that Internet addicts could use more Internet in order to fight loneliness or lonely individuals may be at higher risks of developing Internet addiction by spending excessive time on Internet to fight their loneliness.

Internet use is considered to positively as well as negatively impact adolescents' academic, social, emotional, and personality developments in adolescence. A review of institutional information and the studies above indicate that coping, perceived social support and loneliness are closely associated with Internet addiction. Recent relevant research about adolescents included more studies on Internet addiction (Caplan, 2002; Esen & Siyez, 2011; Eijnden, Meerkerk, Vermulst, Spijkerman & Engels, 2008; Koyuncu, Ünsal, & Arslantaş, 2012; Lei & Wu, 2007). However, prediction studies on the relationship between Internet addiction and coping and perceived social support and loneliness have not been available. Hence, finding out about the extent to which coping, perceived social support, and loneliness predicted Internet addiction is expected to be beneficial in terms of psychological counseling or group psychological counseling interventions organized by experts (psychiatrists, psychologists, psychological counselors) dealing with Internet addiction and psycho-educational activities to reduce or prevent Internet addiction and school-based interventions. Thus, the current study is considered to be necessary and important and to contribute in the relevant literature.

## 2. Method

### 2.1. Research Model

The current study is a descriptive research based on relational survey model (Fraenkel, Wallen, and Hyun, 2012). Predicting variables in the current study were perceived social support, coping strategies, and loneliness; the predicted variable is Internet addiction.

### 2.2. Participants

Study participants included totally 300 students, with a mean age of 16.49 and  $SD=1.27$ , attending high schools in a city in Southeastern Anatolian Region in Turkey during 2015-2016 academic years. 180 (60%) of the adolescents were female as well as 120 (40%) were males. Convenience sampling was used to select the participants. Convenience sampling involves selecting easily-reachable individuals to respond to the instruments in a research (Cohen, Manion & Marrison, 2007; Fraenkel et al., 2012).

### 2.3. Instruments

2.3.1. Short Form of Young's Internet Addiction Test (YIAT-SF): YIAT-SF was developed by Young to measure individuals' Internet addiction. The scale later was modified into a brief form by Pawlikowski et al. (2013). YIAT-SF consists of 12 items in 5-point Likert type format (1=Never, 5=Very Often). YIAT-SF was adapted into Turkish language by Kutlu, Savcı, Demir, and Aysan (2016). The explanatory factor analysis conducted for the scale construct validity indicated that the scale explained 39.52% of the total variance in university students and 48.9% of the total variance in adolescents. According to the confirmatory factor analysis results of YIAT-SF, fit indices values for university students were as follows:  $\chi^2=144.93$ ,  $SD=52$ ,  $RMSEA=.07$ ,  $RMR=.70$ ,  $GFI=.93$ ,  $AGFI=.90$ ,  $CFI=.95$ , and  $IFI=.91$ . BF-YIAT fit indices values for high school students were found as  $\chi^2=141.93$ ,  $SD=51$ ,  $RMSEA=.08$ ,  $GFI=.90$ ,  $CFI=.90$ , and  $IFI=.90$ . Cronbach's alpha coefficient values calculated for the scale reliability were .91 for university students and .86 for high school students. Correlation coefficient for the test-retest reliability was found as .93 for university students and .86 for high school students.

2.3.2. Revised Form of the Multi-Dimensional Perceived Social Support Scale: The scale was developed by Zimet, Dahlem, Zimet, and Farley (1988) to measure individuals' perceived social support levels. Validity and reliability studies for the reviewed form of scale were conducted by Eker, Arkar, and Yaldız (2001). The Reviewed Form of Multi-Dimensional Perceived Social Support Scale consists of three sub-dimensions with four items on each to measure individuals' support from family, friends, and significant other support. The scale includes totally 12 items and, as an increase of scores obtained on the scale indicates an increase in the individual's perceived social support.

2.3.3. Coping Scale for Children and Youth (CSCY): CSCY was developed by Brodzinsky et al. (1992) to define coping strategies of children and youth. Yıldız (in press) conducted the validity and reliability studies within the adaptation for CSCY into Turkish language. CSCY includes 24 items with four sub-dimensions such as assistance seeking, problem solving, cognitive avoidance, and behavioral avoidance. The Confirmatory Factor Analysis conducted for the scale construct validity indicated the fit indices as follows:  $\chi^2 = 506.02$ ,  $SD = 246$ ,  $\chi^2/SD = 2.06$ ,  $p < .01$ ,  $RMSEA = .05$ ,  $SRMR = .06$ ,  $GFI = .90$ ,  $AGFI = .87$ ,  $CFI = .93$ . In addition, CSCY cross validation (metric invariance) was provided in male and female samples. CSCY internal consistency coefficients were found to be .68 for assistance seeking, .79 for problem solving, .32 for behavioral avoidance, and .82 for cognitive avoidance. CSCY composite reliability values were calculated to be between .44 and .81. The correlation values obtained for CSCY test-retest reliability ranged between .32 and .67.

2.3.4.UCLA Loneliness Scale – Short-Form (ULS-8): The ULS-8 was developed by Hays and DiMatteo (1987). The validity and reliability studies for the scale were conducted by Yıldız and Duy (2014). The results of factor analysis conducted for construct validity showed that the scale had a unidimensional structure as is in the original study. Item loadings varied between .31 and .71 as indicated in the factor analysis. Confirmatory factor analysis of ULS-8 yielded acceptable good fit values. According to criterion validity study carried out with 80 students, statistically significant relationships were found between loneliness and overall belongingness ( $r=-.71$ ) and life satisfaction ( $r=-.42$ ). Cronbach’s Alpha consistency coefficient calculated for ULS-8 reliability was found as  $\alpha= .74$ . Test-retest reliability of ULS-8 performed within two weeks interval with 64 students had a high correlation  $r=.84$ .

2.3.5. Personal Information Form: A personal information form was developed to determine the participants’ socio-demographic characteristics such as grade, gender, and age.

#### 2.4. Procedure

Upon obtaining permission from the Education Department, data for the study were collected during instruction by the researchers. Data collection lasted around 20 minutes. Participants were included in the study on a voluntary basis. The current research data analysis involved the examination of whether the regression analysis hypotheses were met. Research data analyses showed that the kurtosis value was a bit higher than 1 within the significant other support, among the sub-dimensions of perceived social support; apart from this, all other values ranged between the accepted values of +1 and -1. For the four independent variables, the Mahalanobis critical value was 18.47 (Pallant, 2011; Tabachnick, and Fidell, 2013). Based on the values obtained in the current research, 16 individuals with outlying values were excluded in the analyses and the analyses were completed with remaining 300 individuals (Mahalanobis value= 15.79). Also, a review of the correlation values among variables indicated no multicollinearity problem as the levels of relationships were not very high. For other hypotheses in the current research, VIF, Tolerance and Durbin-Watson values were reviewed in relation to whether a multi-linearity problem existed and, based on the data obtained from the participants, no multi-linearity problem was found. In addition, Cook distance values (.07) were found below the critical value 1 (Tabachnick and Fidell, 2013). Based on the values obtained on the participants, it was seen that data had a normal distribution and the hypotheses of the multi-regression analysis were met. Descriptive statistics, Pearson correlation coefficient, and multiple regression analysis were used in the current research data analysis. Data analysis involved IBM SPSS 22.0 software. Significance level in the current research was set as .05.

### 3. Results

Descriptive statistics associated with the data obtained on the participants are presented in Table 1.

Table 1

*Descriptive statistics associated with the data obtained on the participants*

Variables	N	Lower Score	Upper Score	Mean	SD	Skewness	Kurtosis
Significant other support	300	4	28	15.49	7.69	-.07	-1.24
Family support	300	4	28	20.67	6.34	-.88	-.01
Friend social support	300	4	28	20.04	6.04	-.72	-.08
Assistance seeking	300	4	16	10.24	2.40	-.09	-.17
Problem solving	300	7	28	19.80	4.08	-.01	-.11
Cognitive avoidance	300	10	40	20.42	5.48	.59	.50
Behavioral avoidance	300	3	12	6.34	1.95	.55	.25
Loneliness	300	7	28	13.64	4.71	.42	-.46
Internet addiction	300	12	59	25.79	10.60	.74	-.01

As seen in Table 1 was emerged that values of skewness and kurtosis were with in normal limits (+1 to -1); thus, it can be said that the data is normally distributed.

Pearson correlation coefficients among the current research variables are presented in Table 2.

Table 2  
 Pearson correlation coefficient values among the research variables

Variables	1	2	3	4	5	6	7	8	9
1. Significant other support	---								
2. Family support	.15**	---							
3. Friend social support	.19**	.45**	---						
4. Assistance seeking	.05	.36**	.35**	---					
5. Problem solving	-.10	.18**	.31**	.38**	---				
6. Cognitive avoidance	-.03	-.05	-.02	-.09	-.12*	---			
7. Behavioral avoidance	.01	-.05	-.06	-.04	-.07	.62**	---		
8. Loneliness	.08	-.11*	-.33**	-.17	-.21**	.04	.04	---	
9. Internet addiction	.10	-.14*	-.13*	-.12*	-.18**	.29**	.21**	.18**	---

N=300 \* $p < .05$ , \*\* $p < .01$

As can be seen in Table 2, based on the results of correlation analysis, no significant-level relationship was found between significant other support and Internet addiction. A negative low-level relationship was found between family support and support from friends and Internet addiction. On the other hand, a negative low-level relationship was found between assistance seeking and problem solving among coping strategies and Internet addiction. A positive low-level relationship between cognitive avoidance and behavioral avoidance and Internet addiction was found. In addition, a low-level positive relationship between loneliness and Internet addiction was determined.

The results of standardized multiple regression analysis associated with sub-dimensions of perceived social support predicting Internet addiction are presented in Table 3.

Table 3

The results of multiple regression analysis associated with perceived social support predicting Internet addiction

Predictor Variables	B	Standardized $\beta$	t	p	R	R <sup>2</sup>
Constant	30.643		12.14	.00	.21	.04
Significant other support	.18	.13	2.27*	.02		
Family support	-.19	-.11	-1.77	.08		
Friend social support	-.19	-.11	-1.66	.10		

\* $p < .05$ , \*\* $p < .01$

Results of the standardized multiple regression analysis in Table 3 indicate that there was a low-level relationship between the sub-dimensions of perceived social support and Internet addiction ( $R = .21$ ,  $R^2 = .04$ ,  $p < .05$ ). Sub-dimensions of perceived social support combined explained 04% of the variance in Internet addiction. In addition, the model was found to be on significant levels [ $F_{(3, 296)} = 4.42$ ,  $p < .01$ ]. Based on the standardized regression coefficient ( $\beta$ ), support from significant other support ( $\beta = .13$ ,  $t = 2.27$ ,  $p < .05$ ) was seen to significantly predict the Internet addiction. On the other hand, a review of t-test results associated with the significance of regression coefficient indicated that family support ( $t = -1.77$ ,  $p > .05$ ) and support from friends ( $t = -1.66$ ,  $p > .05$ ) did not have a significant effect on Internet addiction.

Standardized multiple regression analysis results associated with coping strategies predicting Internet addiction are presented in Table 4.

Table 4

Multiple Regression analysis results associated with coping strategies predicting Internet addiction

Predictor Variables	B	Standardized $\beta$	t	p	R	R <sup>2</sup>
Constant	23.325		5.54	.00	.33	.11
Assistance seeking	-.20	-.04	-.75	.45		
Problem solving	-.34	-.13	-2.23*	.03		
Cognitive avoidance	.47	.25	3.50**	.00		
Behavioral avoidance	.25	.05	.67	.50		

\* $p < .05$ , \*\* $p < .01$

Standardized multiple regression analysis results indicate that there was a medium-level relationship between the sub-dimensions of coping and Internet addiction ( $R = .33$ ,  $R^2 = .11$ ,  $p < .05$ ). Sub-dimensions of coping combined explain 11% of the variance in Internet addiction. Also, the model was found to be significant [ $F_{(4, 295)} = 9.28$ ,  $p < .001$ ]. A review of standardized regression coefficient ( $\beta$ ) indicates that cognitive avoidance ( $\beta = .25$ ,  $t = 3.50$ ,  $p < .01$ ) and problem solving ( $\beta = -.13$ ,  $t = -2.23$ ,  $p < .05$ ), in the order of relative importance for Internet addiction, significantly predicted Internet addiction. On the other hand, a review of the t-test results

associated with the significance of standardized regression coefficients indicates that assistance seeking ( $t = -.75$ ,  $p > .05$ ) and behavioral avoidance ( $t = .67$ ,  $p > .05$ ) had no significant effect on the Internet addiction.

Standardized multiple regression analysis results associated with loneliness predicting Internet addiction are presented in Table 5.

Table 5

*Multiple regression analysis results associated with loneliness predicting Internet addiction*

Predictor Variables	B	Standardized $\beta$	t	p	R	R <sup>2</sup>
Constant	20.348		10.99	.00	.18	.03
Loneliness	.40	.18	3.11**	.00		

\* $p < .05$ , \*\* $p < .01$

Standardized multiple regression analysis results in Table 5 indicate that there was a low-level relationship between loneliness and the Internet addiction ( $R = .18$ ,  $R^2 = .03$ ,  $p < .05$ ). Loneliness alone explains 3% of the variance in Internet addiction. Also, the model was found to be significant [ $F_{(1,298)} = 9.68$ ,  $p < .01$ ]. A review of standardized regression coefficient ( $\beta$ ) indicates that loneliness ( $\beta = .18$ ,  $t = 3.11$ ,  $p < .01$ ) significantly predicted Internet addiction.

#### 4. Discussion, Conclusion and Suggestions

The current study aimed to examine the roles of perceived social support, coping, and loneliness to predict Internet addiction in adolescents. The current study results showed that social support provided by significant other supports, loneliness, and cognitive avoidance and problem solving among coping strategies significantly predicted the Internet addiction and that family support and friend support among sub-dimensions of perceived social support as well as assistance seeking and behavioral avoidance among coping strategies did not predict the Internet addiction.

In the current research, social support provided by significant other supports was found to predict the Internet addiction; however, family support and friend support among the sub-dimensions of perceived social support were found to not predict the Internet addiction. Similar studies conducted also showed negative relationships between perceived social support and the Internet addiction (Kraut, Scherlis, Patterson, Kiesler, and Mukhopadhyay, 1998; Özcan and Buzlu, 2005). Kiran-Esen and Gündoğdu (2010) found that the Internet addiction decreased as adolescents' peer pressure decreased and perceived family and teacher support increased. In parallel with the current study results, the researchers (Kiran-Esen and Gündoğdu, 2010) did not find a relationship between perceived friend support and the Internet addiction. In a similar study, Batıgün and Kılıç (2011) showed that as Internet addiction increased, the perceived social support was lower and the perceived social support did not predict the Internet addiction. In another similar study, Esen and Siyez (2011) found that as adolescents' Internet addiction increased, perceived social support from family decreased. In addition, the researchers (Esen and Siyez, 2011) determined that academic achievement and, contrary to the findings of the current study, perceived social support from family predicted the Internet addiction. Thatcher and Goolam (2005), on the other hand, stated that individuals used the Internet more both for socializing and seeking social support. Other studies conducted found results both agreeing and conflicting with the results of the current study. This may be due to working with different sampling groups. The current research included adolescents; thus, their involvement in romantic partnerships may be a factor leading to significant other support predicting Internet addiction. Alternatively, adolescents seeking romantic partnership and relationships may be more often using the Internet. On the other hand, as adolescents were increasingly involved in romantic partnerships or the opposite gender, their family and friend support may have not predicted the Internet addiction. Based on the results of the current study, perceived social support from family and friends may be said to have no relationship with Internet addiction.

Another finding of the current research showed that problem solving and cognitive avoidance among coping strategies significantly predicted the Internet addiction. However, assistance seeking and behavioral avoidance dimensions did not predict the Internet addiction. According to Young (1996), one of the diagnosis criteria for the Internet addiction was about individual's use of Internet for escaping from problems or reducing negative emotions. This criterion seems to support the finding of the current research. Thus, adolescents may be spending time on the Internet in order not to face the problems bothering them; they may be using cognitive avoidance to develop Internet addiction. Sheeks and Birchmeier (2006) showed that relationships built on Internet environment reduced anxiety and worries individuals and, thus, timid persons more often used the Internet. Ögel (2012) stated that the Internet and computer were used within a strategy to cope with stress; individuals experiencing boredom, anxiety, and excitement diverted their attention through computers and the Internet; and individuals experiencing problems with family relationships and friendships, and not being able to solve problems, spent more time on the Internet. It has been reported that individuals spending time on the Internet can focus their attention on something else to reduce the severity of their internal problem experience.

Whang et al. (2003) showed that Internet addicts had social behavioral disorders and used the Internet more during stress and depression. According to the results of the current study, problem solving among coping strategies predicted the Internet addiction and this may be based on adolescents' unsolved problems. Thus, the adolescent may have used the Internet within a coping behavior by using the Internet more instead of solving the problems surrounding his/her. Adolescents solving the problems surrounding them may prefer real social environments as they can cope better. Similarly, cognitive avoidance predicted the Internet addiction in the current study; this may be due to adolescents' experience of many problems associated with school (career decisions, low academic achievement, etc.), friendships, family, teachers or social environments. As thinking about the problems experienced disturbs the adolescents, they may be using the Internet more instead of thinking about the problems. However, in the current study, assistance seeking and behavioral avoidance sub-dimensions of coping did not predict the Internet addiction. Hence, these variables may be said to have no inter-relationships.

Another finding in the current study showed that the Internet addiction had a positive relationship with loneliness and loneliness predicted the Internet addiction. Similar studies also showed significant relationships between loneliness and the Internet addiction (Caplan, 2002; Pawlak, 2002). Kurtaran's (2008) study indicated that loneliness predicted the Internet addiction. In a similar research, Ceyhan and Ceyhan (2008) showed that loneliness, depression, and computer self-competence predicted the problematic Internet use. Also, the variable that predicted the Internet addiction most was, respectively, found to be loneliness, depression, and computer self-competence. Kraut, Patterson, Lundmark, Kiesler, Mukhopadhyay, and Scherlis (2002) found that individuals with high levels of anxiety and feeling lonely used the Internet more. Ceyhan (2008) showed in his/her study with university students that students used the Internet most often at night and they used it, first of all, for communicating with relatives and friends and having enjoyable time. Also, it was revealed that using the Internet for contacting relatives and friends, having enjoyable time and the psychological symptoms predicted the Internet addiction. Esen and Siyez (2011) found a positive relationship between the Internet addiction and loneliness. Researchers also showed that loneliness and perceived social support from family predicted the Internet addiction. In other similar studies, significant relationships between excessive Internet use and loneliness were found (Engelberg & Sjöberg, 2004; Nalwa & Anand, 2003). Çağır and Gürkan (2010) found a positive relationship between problematic Internet use and loneliness in a study conducted with high school and university students. Excessive use of Internet has been reported to negatively impact an individual's both academic achievement and personal development and to lead to problems associated with health, communication, and time management. Thus, in such situation, individuals may lack social interactions, have their well-being ruined, and experience loneliness. Arıcak (2009) states that technologies associated with Internet and online systems, as the most popular tools of communication, are among the indispensable elements of contemporary daily life. The researcher emphasizes that youth and university students use the tools based on this technology more and that beside many benefits that the Internet provides, there are many problems associated with the abuse of Internet use (Arıcak, 2009). Consequently, it was seen that findings of other studies conducted and the findings of the current research support each other; there was a relationship between loneliness and Internet addiction; and the loneliness was an important predictor of Internet addiction. In other words, it may be said that adolescents feeling lonely may use the Internet more. Probably, these adolescents may be using the Internet much more, in order to cope with feelings of loneliness. It may particularly be thought that preferring the Internet for social interactions may prevent adolescents from developing their social skills and may lead then to experience communication problems in family and work environments.

Following suggestions may be put forward for experts to work on Internet addiction. Considering that cognitive avoidance among coping strategies predicted the Internet addiction in the current study, skill trainings, through psycho-educational activities, may be provided for adolescents to better equip them to effectively cope with problems and to prevent them from using the Internet within a cognitive avoidance strategy. Also, it may be said that developing coping strategies that could be cognitively, affectively, and behaviorally functional may be emphasized in psychological counseling for Internet addicts. Considering the importance of support from parents, teachers, and friends in adolescents' social, emotional, and personality development, psychological counseling with the individuals may be conducted both within the Internet addiction intervention and towards developing individual's perception of social support during adolescence. As loneliness is associated with Internet addiction, development of intervention methods may be recommended within individual and group psychological counseling for adolescent Internet addicts. Particularly within interventions against adolescent Internet addicts' loneliness, participation in social activities (club activities, social and sports, etc., activities) at schools could be promoted and teachers, psychological counselors, and administrators may be encouraged to run the clubs actively. In addition, considering that adolescents' increased loneliness levels increase the Internet addiction, the development and application of programs including social skills and communication skills education may be recommended for psychological counselors in an effort to reduce adolescents' loneliness levels and to develop their social relationships.

The current study has some limitations. One limitation is about participant adolescents with no known

clinical diagnosis. Findings of the current study must be considered based on this. Another limitation is that the current study was conducted with a total of 300 adolescents attending high schools in Adıyaman, Turkey, during 2015-2016 academic years. In terms of generalizing the findings, study must be re-conducted in different region and cities or countries. In the current research, perceived social support, coping strategies, and loneliness predicting, or not predicting, the Internet addiction were examined. Future studies involving these variables may be conducted with different samples (university students, adults). Also, variables (depression, hopelessness, emotion regulation, etc.) that could predict Internet addiction in adolescents may be studied.

## References

- Arıcak, O. T. (2009). Psychiatric symptomatology as a predictor of cyberbullying among university students. *Eurasian Journal of Educational Research*, 34, 167-184.
- Batıgün, A.D. & Kılıç, N. (2011). The relationships between Internet addiction, social support, psychological symptoms and some socio-demographical variables, *Turkish Journal of Psychology*, 26 (67), 11-13.
- Baum, A., Singer, J. E., & Baum, C. (1981). Stress and the environment. *Journal of Social Issues*, 37(1), 4-33.
- Brodzinsky, D. M., Elias, M. J., Steiger, C., Simon, J., Gill, M., & Hitt, J. C. (1992). Coping Scale for children and youth: Scale development and validation. *Journal of Applied Developmental Psychology*, 13, 195-214. doi: 10.1016/0193-3973(92)90029-H
- Caplan, S. E. (2002). Problematic Internet use and psychological well-being: development of a theory based cognitive-behavioral measurement instrument. *Computers in Human Behavior*, 18, 553-75.
- Ceyhan, A.A. (2008) Predictors of problematic Internet use on Turkish university students *CyberPsychology & Behavior*, 11(3), 363-366.
- Ceyhan, A. A., & Ceyhan, A. (2008). Loneliness, depression, and computer self-efficacy as predictors of problematic Internet use, *CyberPsychology & Behavior*, 11(6), 699-701.
- Cohen, L. M., Manion, L. I., & Morrison, K. (2007). *Research methods in education* (6th ed.). New York: Taylor & Francis.
- Çağır, G., & Gürkan, U. (2010). The relationship between the levels of high school and university students' problematic use of Internet and their perceived wellness and loneliness levels. *Balikesir University Journal of Social Sciences Institute*, 13(24), 70- 85.
- Derin, S. (2013). *High school students Internet addiction and subjective well-being*. Unpublished Master Thesis, Hacettepe University Social Sciences Institute, Ankara.
- Durak-Batıgün, A., & Hasta, D. (2010). Internet addiction: An evaluation in terms of loneliness and interpersonal relationship styles. *Anatolian Journal of Psychiatry*, 11, 213-219.
- Eker, D., Arkar, H., & Yıldız, H. (2001). Factorial structure, validity, and reliability of revised form of the multidimensional scale of perceived social support. *Turkish Journal of Psychiatry*, 12(1), 17-25.
- Erden, S., & Hatun, O. (2015). The use of cognitive-behavioral therapy in coping with Internet addiction: A Case Study, *The Turkish Journal on Addictions*, 2(1), 70-83.
- Ernst, J. M. & Cacioppo, J.T. (1999). Lonely hearts: Psychological perspectives on loneliness. *Applied and Preventive Psychology*, 8, 1-22.
- Ersun, A., Şahin-Köze, B., Muslu, G., Beytut, D., Başbakkal, Z., & Conk, Z. (2012). Investigation of the relation between the use of Internet among nursing students and social support systems, *Florence Nightingale Hemşirelik Dergisi*, 20(2), 86-92.
- Eijnden, R. J. M., Meerkerk, G. J., Vermulst, A. A., Spijkerman, R., & Engels, C. M. E. (2008). Online communication, compulsive Internet use, and psychosocial well-being among adolescents: A longitudinal study. *Developmental Psychology*, 44, 655-665.
- Engelberg, E. & Sjöberg, L. (2004). Internet use, social skills, and adjustment, *CyberPsychology and Behavior*, 7(1), 41-50.
- Esen, E., & Siyez, D.M. (2011). An investigation of psycho-social variables in predicting internet addiction among adolescents, *Turkish Psychological Counseling and Guidance Journal*, 4(36), 127-138.
- Fraenkel, J., Wallen, N. & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed.) Boston: McGraw Hill.
- Gutman, L. M., & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African American students during the middle school transition. *Journal of Youth and Adolescence*, 29(2), 223-248.
- Hays, R. D., & DiMatteo, M. R. (1987). A short-form measure of loneliness. *Journal of Personality Assessment*, 51(1), 69-81.
- Kıran-Esen, B., & Gündoğdu, M. (2010). The relationship between Internet addiction, peer pressure and perceived social support among adolescents, *The International Journal of Educational Researchers*, 2(1), 29-36.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., & Scherlis, W. (2002). Internet paradox:



- A social technology that reduces social involvement and psychological well-being? *Journal of Social*, 58 (1), 49-74.
- Kraut, R., Scherlis, W., Patterson, M., Kiesler, S., & Mukhopadhyay, T. (1998). Social impact of the Internet: What does it mean? *Communications of the ACM*, 41(12), 21–22.
- Kim, J. H., Lau, C. H., Cheuk, K. K., Kan, P., Hui, H., L. C., & Griffiths, S M. (2010). Brief report: predictors of heavy internet use and associations with health-promoting and health risk behaviors among Hong Kong University students. *Journal of Adolescence* 33, 215-220.
- Koyuncu, T., Ünsal, A., & Arslantaş, D. (2012). İlköğretim ve lise öğrencileri arasında internet bağımlılığı ve yalnızlık. (2-6 Ekim, Bursa), Uludağ Üniversitesi, 15. Ulusal Halk Sağlığı Kongresi.
- Kurtaran, G. T. (2008). *Examining the variables predicted Internet addiction*. Unpublished Master Thesis, Mersin University Social Sciences Institute, Mersin.
- Kutlu, M., Savcı, M., Demir, Y., & Aysan, F. (2016). Turkish adaptation of Young's Internet Addiction Test-Short Form: a reliability and validity study on university students and adolescents. *Anatolian Journal of Psychiatry*, 17(1), 69-76.
- Lazarus, R. S. (1991). Psychological stress in the workplace. Handbook on job stress, *Journal of Social Behavior Personality*, 6(7), 1-9.
- Lazarus, R. S., & Folkman S. (1984). *Stress, appraisal, and coping*, New York: Springer Publishing Company.
- Lei, L., & Wu, Y. (2007). Adolescents' paternal attachment and Internet use, *CyberPsychology and Behavior*, 10, 633-639.
- Lin, S. S. J., & Tsai, C. C. (2002). Sensation seeking and internet dependence of Taiwanese high school adolescents. *Computers in Human Behavior*, 18, 411–426.
- Martin, J., Schumacher, P. (2003). Loneliness and social uses of the internet. *Computers and Behavior*, 19, 659-671.
- Morahan-Martin, J. M., & Schumacher P. (2000). Incidence and correlates of pathological internet use among college students. *Computers in Human Behavior*, 16, 13-29.
- Nalwa, K., & Anand, A. (2003). Internet addiction in students: A cause of concern, *CyberPsychology and Behavior*, 6(6), 653-656.
- Nedim-Bal, P., & Metan H. (2016). The effect of computer addiction management psycho training program on 9th grade students, *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 16(1), 62-74.
- Ögel, K. (2012). *İnternet bağımlılığı: İnternetin psikolojisini anlamak ve bağımlılıkla başa çıkmak*. İstanbul: Türkiye İş Bankası Kültür Yayınları.
- Özcan, N. & Buzlu, S. (2005). Problemlı internet kullanımını belirlemede yardımcı bir araç: İnternet bilişsel durum ölçeğinin üniversite öğrencilerinde geçerlik ve güvenilirliğı. *Bağımlılık Dergisi*, 6(1), 19-26.
- Özdilek, A. (2002). *İnternet ve hukuk*. İstanbul: Papatya Yayıncılık.
- Özmutaf, M.N., Özgür, Z. & Gökmen, F. (2008). General point of view of the university students on computer usage in context of personal health. *Ege Journal of Medicine* ,47 (2) , 81 – 86.
- Pallant, J. (2011). *SPSS survival manual a step by step guide to data analysis using SPSS*. 4<sup>th</sup> Edition. Australia: Allen & Unwin.
- Papacharissi, Z. & Rubin A. M. (2000). Predictors of Internet use. *Journal of Broadcast Electron Media*, 44, 175-196.
- Pawlak, C. (2002). Correlates of Internet use and addiction in adolescents. *Dissertation Abstracts International Section A: Humanities & Social Sciences*, 63(5), 1727.
- Pawlikowski, M., Altstötter-Gleich, C., & Brand, M. (2013). Validation and psychometric properties of a short version of Young's internet addiction test. *Computers in Human Behavior*, 29(3), 1212-1223.
- Peplau, L. A., & Perlman, D. (1982). Perspective on loneliness. In L. A. Peplau & D. Perlman (Eds), *Loneliness: A sourcebook of current theory, research, and therapy* (pp. 1–8). New York: Wiley Inter science.
- Sanders, M. G., & Herting, J. R. (2000). *Gender and the effects of school, family, and church support on the academic achievement of African-American urban adolescents*. In M. G. Sanders (Ed.), *Schooling students placed at risk: Research, policy, and practice in the education of poor and minority adolescents* (pp.141-161). Mahwah, NJ: Lawrence Erlbaum Associates.
- Sheeks, M., & Birchmeier, Z. (2007). Shyness, sociability, and the use of computer-mediate communication in relationship development. *CyberPsychology & Behavior*, 10(1), 64–70.
- Swickert, R. J., Hittner, J. B. & Harris, J. L. (2002). Relationship among Internet use, personality and social support. *Computers in Human Behavior*, 18, 437-451.
- Şahin, N.H. (1994). *Stres nedir? Ne değildir?. Stresle başa çıkma: Olumlu bir yaklaşım*, Ankara: Türk Psikologlar Derneği Yayınları.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.), Boston: Allyn and Bacon.
- Taçyıldız, Ö. (2010). *Prediction of levels of internet addiction in high school students according to some variables*. Unpublished Master Thesis, Ege University Social Sciences Institute, İzmir.

- Tarhan, N., & Nurmedov, S. (2011). *Bağımlılık sanal veya gerçek*. İstanbul: Timaş Yayınları.
- Thatcher, A., & Goolam, S. (2005). Development and psychometric properties of the problematic Internet use questionnaire. *South African Journal of Psychology*, 35(4), 793-809.
- Toprak, A., Yıldırım, A., Aygül, E., Binark, M., Börekçi, S., & Çomu, T. (2009). *Toplumsal paylaşım ağı Facebook: "görülüyorum öyleyse varım!"*. İstanbul: Kalderon Yayınları.
- Whang, L. S., Lee, S., & Chang G. (2003). Internet over-users 'psychological profiles: A behavior sampling analysis on internet addiction. *Cyberpsychol Behavior*, 6, 143-150.
- Yeh, Y. C., Ko, H. C., Wu, J. Y. W. & Cheng, C. P. (2008). Gender differences in relationships of actual and virtual social support to internet addiction mediated through depressive symptoms among college students in Taiwan. *CyberPsychology & Behavior*, 11, 485-487.
- Yıldırım, İ. (1997). Algılanan sosyal destek ölçeğinin geliştirilmesi güvenilirliği ve geçerliği, *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 13, 81-87.
- Yıldız, M. A. (In press). Çocuk ve ergenler için baş etme ölçeğinin Türkçe'ye uyarlanması:Geçerlik ve güvenilirlik çalışmaları [Adaption of the coping scale for children and youth-CSCY to Turkish: Validity and reliability studies]. *Çocuk ve Gençlik Ruh Sağlığı Dergisi*.
- Yıldız, M. A., & Duy, B. (2014). Adaptation of the short-form of the UCLA loneliness scale (ULS-8) to Turkish for the adolescents. *Düşünen Adam: The Journal of Psychiatry and Neurological Sciences*, 27(3), 194-203. doi: 10.5350/DAJPN2014270302
- Yılmaz, E., Şahin, Y. L., Haseki, H. İ., & Erol, O. (2014). An analysis of Internet addiction among high school students with respect to several variables: Balıkesir province sample, *Journal of Educational Sciences Research*, 4(1), 133-144.
- Young, K. S. (1996). Internet addiction: the emergence of a new clinical disorder, *Published in CyberPsychology and Behavior*, 1(3), 237-244.
- Young, K. S. (1998). How to recognize the signs of Internet addiction and a winning strategy for recovery. New York: Wiley.
- Yüksel, G., & Baytemir, K. (2010). Examination of Internet usage intentions and perceived social support levels of primary education students, *The Journal of Turkish Educational Sciences*, 8(1), 1-20.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30-41.