

# Loneliness, Perceived Social Support, and Psychological Resilience as Predictors of Internet Addiction: A Cross-Sectional Study with a Sample of Turkish Undergraduates

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## ABSTRACT

**Background:** This article examined the perceived social support, psychological resilience, and loneliness as predictors of internet addiction among university undergraduate students in Turkey.

**Methods:** Participants were 1028 university students (408 males and 620 females) from state university in Turkey. Measuring tools included the Descriptive Information Form, Internet Addiction Scale, Multidimensional Perceived Social Support Scale, UCLA Loneliness Scale, and Brief Resilience Scale.

**Results:** According to the findings of the study, positive correlation between internet addiction and perceived social support ( $r=0.078$ ,  $P < .01$ ) and loneliness ( $r=0.525$ ,  $P < .001$ ) shows a significant relationship. There was a significant and inverse relationship between psychological resilience and internet addiction ( $r=-0.498$ ,  $P < .001$ ). It was found that perceived social support, loneliness, and psychological resilience explained 34% of the total variance in internet addiction. Regression analysis showed that perceived social support ( $\beta=0.061$ ,  $P < .01$ ), loneliness ( $\beta=0.574$ ,  $P < .001$ ), and psychological resilience ( $\beta=-1.128$ ,  $P < .001$ ) significantly predicted internet addiction. Regression analysis revealed that psychological resilience negatively predicted internet addiction, while perceived social support and loneliness positively predicted internet addiction.

**Conclusion:** Based on the findings, improving students' psychological resilience can be an effective way to reduce internet addiction behavior. Additionally, social activities and relevant measures should be planned to increase students' awareness of internet addiction, reduce their feelings of loneliness, and encourage them to establish positive interpersonal relationships.

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## INTRODUCTION

The internet has become an easy-to-access and indispensable technology in all areas of human life. Its life-facilitating functions cause people to spend too much time online, and even this excessive use may sometimes reach the level of addiction.<sup>1</sup>

In both daily conversations and the literature, a person addicted to the internet is described as someone who loses their control and lets their use of the internet negatively affect their private life, business life, and other areas of life. Although they try to avoid this situation, they cannot control themselves.<sup>2</sup> Young<sup>3</sup> defined internet addiction for the first time. Young described people who are addicted to the internet as people who lack the ability to stop themselves from using too much of it, who see being offline as wasted time, become nervous and agitated as a result of deprivation, and let their excessive internet use deteriorate their private and professional relationships.<sup>3</sup> The Diagnostic

and Statistical Manual of Mental Disorders (DSM-5) does not describe internet addiction as a disease and places it under the title of internet game addiction, in the third section as a condition that requires further studies.<sup>1</sup>

The rate of individuals using the internet was 75.3% for those aged between 16 and 74 years in 2019. This rate increased to 79.0% in 2020, where most of the users were in the 16-24 age range. The rate of internet use is 84.7% for men and 73.3% for women.<sup>4</sup> Most people using the internet are 16-24 years old, which coincides with puberty. The recent increase in the use of the internet facilitates addiction at a younger age, and it is regarded as a significant risk factor for fast development of addiction.<sup>5</sup> Since university students have more free time and have easy and consistent internet access through a variety of wireless resources, they spend more time on the internet and are thus more likely to develop internet addiction.<sup>6</sup> As university students

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are away from their homes, tend to establish interpersonal relationships during this period, and do not use their free time appropriately, they are likely to become internet addicts.<sup>7</sup>

Studies on children and young people with long hours of internet use have reported that excessive internet use has many negative effects on children and young people, including impaired mental functions and thought processes, reduced sensitivity to interpersonal relationships, loneliness, and difficulty in establishing face-to-face relationships.<sup>8</sup>

Loneliness is a subjective psychological perception or experience that happens when a person lacks satisfying interpersonal relationships and perceives a contact distance between their ideal and actual levels of communication. In general, researchers consider loneliness as a significant factor in internet addiction.<sup>6</sup>

Studies have emphasized that loneliness is a significant factor that explains internet addiction, suggesting that loneliness and internet addiction are positively correlated.<sup>6,9-11</sup> According to Davis' theoretical model, loneliness caused by insufficient social support and/or social isolation might pave the way for becoming addicted to the internet.<sup>12</sup>

The literature describes social support as the "knowledge that leads people to feel that they are valued and cared for, they are respected, and they are a part of a group of shared responsibilities."<sup>13</sup> Studies on social support have mentioned 2 different versions as perceived and received social support. Received social support is the presence of support when required. It may be defined qualitatively and subjectively, while it may also be measured. Perceived social support, on the other hand, is more determinative. Not only social support itself but also the way it is perceived and interpreted is effective on mental health.<sup>14</sup> When people's perceived social support decreases, or they are more accustomed to internet media, which prevents human-to-human relationships, their social relationships become weaker, increasing the number of people who become lonelier. Adolescents who do not have a healthy social environment are likely to adopt bad habits and exhibit negative behaviors as a result of being lonely.<sup>13</sup> Some studies have shown that, if their social resources are relatively insufficient, individuals may choose the internet as a tool to meet their social needs and receive social support, especially when they need to rebuild social networks and communicate with others due to environmental changes.<sup>6</sup>

Psychological resilience is defined as one's ability to successfully overcome negative situations, adapt to new conditions, and produce positive results despite serious threats to their adaptation and development.<sup>15</sup> While some individuals have serious problems in returning to normal life due to psychological problems caused by negative life events such as stressful situations and traumatic

experiences, some individuals are easily able to get rid of these types of psychological problems and adapt quickly to a new life. This situation, which varies from one person to another, refers to the concept of psychological resilience.<sup>16</sup> Studies have shown that psychological resilience and the risk of internet addiction are negatively correlated among teens and university students.<sup>17-19</sup>

University students are some of the most vulnerable individuals in terms of internet addiction and its psychosocial repercussions, given the high prevalence of internet use among them. Therefore, investigating the topic to reveal more information and determine groups at risk and the necessary precautions by conducting studies especially on young people is quite important. Although there are studies that examine internet addiction, social support, and loneliness together, studies on the relationship between internet addiction and psychological resilience are limited. Additionally, there is no research covering the impact of psychological resilience, perceived social support, and loneliness on addiction. Therefore, this study aims to investigate whether internet addiction is correlated with perceived social support, loneliness, and psychological resilience in university students. In this context, answers were sought for the following research questions:

1. Is internet addiction correlated with perceived social support, loneliness, and psychological resilience among university students?
2. Do perceived social support, loneliness, and psychological resilience predict internet addiction?

## METHODS

### Design

This quantitative study was carried out following the relational screening model.

### Setting and Participants

The population consisted of 18 639 undergraduate students studying at a state university during the fall semester of the academic year 2019-2020. The sample included 1028 undergraduate students from different schools of the university, and it was determined using the simple random sampling method, which is a probabilistic sampling method. The size of the sample was determined using the sampling method with known population based on the formula:  $\frac{Nt^2pq}{d^2(N-1)+t^2pq}$ . A CI of 90% and a margin of error of 0.05 were accepted to calculate the population representation power of the sample. As a result, the minimum sample size to represent the population of this study was calculated as 377, taking into account the 90% CI and 5% margin of error. Accordingly, the sample of this study, which included 1028 students, was considered sufficient

to represent the population. The researchers collected the data in classrooms by interviewing the students in person. The dates and times for conducting surveys were determined together with instructors after getting their permission. Before distributing the questionnaires to the participants, the researchers informed the participants about the study, emphasizing that their participation in the study was based on volunteerism. It took around 20-25 minutes to fill out the forms.

## MEASURES

### Descriptive Information Form

The form included questions about the students' age, gender, and years of study.

### Internet Addiction Scale

Young<sup>20</sup> developed the test to measure university students' internet addiction levels by adapting *DSM-IV* diagnostic criteria for pathological gambling. It was adapted to Turkish by Bayraktar.<sup>21</sup> The 6-point Likert-type test includes 20 items (none reversed), scored from 0 (never) to 5 (always). The level of internet addiction rises in direct proportion to the score. The test's  $\alpha$  coefficient is 0.91, and the same coefficient was calculated as 0.94 in this study.

### Multidimensional Scale of Perceived Social Support

Zimet et al<sup>22</sup> created the scale, and Eker et al<sup>23</sup> adapted it to the Turkish language. The 12-item 7-point Likert-type scale has 3 subscales to indicate sources of support as family, friend, and significant other. Each subscale includes 4 items: Family (items 3, 4, 8, and 11), Friends (items 6, 7, 9, and 12), and Significant Other (items 1, 2, 5, and 10). The lowest and highest scores are 12 and 84 for the scale and 4 and 28 for each of its subscales. Perceived social support increases in direct proportion to the score. The scale's total  $\alpha$  coefficient is 0.89, whereas this coefficient is 0.85 for family, 0.88 for friends, and 0.92 for significant other.<sup>23</sup> In this study, the total  $\alpha$  coefficient of the scale was calculated as 0.94.

### UCLA Loneliness Scale

Russell et al<sup>24</sup> developed the scale to measure students' loneliness levels. Demir<sup>25</sup> tested the validity and reliability of the scale for the Turkish language. It consists of 20 items, some directly and some inversely scored. Each item of this scale includes statements to express feelings or thoughts about social relationships. Instead of the negative ones, the positive items are scored in reverse. Scale is scored between 20 and 80, and the intensity of perceived loneliness increases with the score. Demir<sup>25</sup> calculated the  $\alpha$  coefficient of the scale as 0.96. The same coefficient was calculated as 0.90 in this study.

### Brief Resilience Scale

Smith et al<sup>26</sup> developed the scale to measure one's self-recovery potential and psychological resilience. It was adapted to Turkish by Doğan.<sup>16</sup> Each item in the 6-item, 5-point Likert-type scale is scored between 1 (low resilience) and 5 (high resilience). Items 2, 4, and 6 are inversely scored. A higher score on the scale indicates a higher level of psychological resilience. The factor loads of the items were reported to range from 0.63 to 0.79. The scale's item-total correlations were reported to range from 0.49 to 0.66. The  $\alpha$  coefficient of the scale was reported as 0.83. The same coefficient was found to be 0.80 in this study.

### Ethical Procedure

To perform the study, the ethical endorsement was obtained from the Social Sciences and Humanities Ethics Committee of Bartın University in Turkey (Date: 20 May 2019, No: 2019-136). Written permission was received from the Quality Coordinator, Measurement and Evaluation Unit of the university where the study was conducted. The study was carried out in line with human rights and ethical research principles. The participants were asked for written and verbal consent before applying the questionnaire, and the scale forms were distributed after they provided consent.

### Statistical Analysis

Statistical analysis was performed using the IBM SPSS Statistics for Windows, Version 22 (IBM SPSS Statistics for Windows, IBM Corporation, Armonk, NY, USA). A value of  $P < .05$  was considered statistically significant. One-sample Kolmogorov-Smirnov test was used to analyze the normal distribution of the data, and it was found that data were normally distributed. In addition, whether the data showed normal distribution was examined according to kurtosis and skewness values, and it was found that the data were normally distributed. Correlations between internet addiction, perceived social support, psychological resilience, and loneliness were measured using Pearson's correlation analysis. Furthermore, multiple linear regression analysis was used to predict the dependent variable (internet addiction) based on perceived social support, psychological resilience, and loneliness. The relationship between independent variables was checked through multi-collinearity, and the relationship between error terms was checked via auto-correlation. Variance inflation factors (VIF), which show the value of multi-collinearity, must be lower than 10, while tolerance value must be higher than 0.1. The Durbin-Watson value, which indicates the auto-correlation value, must be between 1.5 and 2.5.<sup>27</sup> According to the results obtained, there is no multi-collinearity problem in terms of tolerance and VIF values ( $T > 0.1$ ;  $VIF < 10$ ). In other words, there is no auto-correlation between independent variables.

**Table 1.** Descriptive Characteristics of the Students

| Groups                           | n   | %    |
|----------------------------------|-----|------|
| Age                              |     |      |
| 20 years and below               | 689 | 67.0 |
| More than 20 years               | 339 | 33.0 |
| Mean=20.17±2.45                  |     |      |
| Gender                           |     |      |
| Female                           | 620 | 60.3 |
| Male                             | 408 | 39.7 |
| Grade                            |     |      |
| First grade                      | 538 | 52.3 |
| Second grade                     | 239 | 23.2 |
| Third grade                      | 127 | 12.4 |
| Fourth grade                     | 124 | 12.1 |
| A constant online friend         |     |      |
| Yes                              | 741 | 72.1 |
| No                               | 287 | 27.9 |
| Frequency of internet use        |     |      |
| Everyday                         | 995 | 96.8 |
| A few times a month              | 33  | 3.2  |
| Daily time spent on the Internet |     |      |
| Less than 1 hour                 | 35  | 3.4  |
| 1-3 hours                        | 330 | 32.1 |
| 3-6 hours                        | 388 | 37.7 |
| 6-12 hours                       | 220 | 21.4 |
| 12 hours and more                | 55  | 5.4  |

## RESULTS

### Descriptive Characteristics of the Participants

The sample included 1028 undergraduate students, including 620 (60.3%) female students and 408 (39.7%) male students, who studied in a university in Turkey between 2019 and 2020. Among the students, 538 (52.3%) were freshmen, 239 (23.2%) were sophomores, 127 (12.4%) were juniors, and 124 (12.1%) were seniors. The mean age of the students was 20.17±2.45. A total of 741 (72.1%) students had friends with whom they had constant contact on the internet, 995 (96.8%) used the internet every day, 220 (21.4%) used the internet 6-12 hours a day, and 55 (5.4%) used the internet for 12 hours or longer per day (Table 1).

**Table 2.** The Mean Scales Scores of the University Students

|                          | N    | Mean±SD      | Median | Min.  | Max.   | Kurtosis | Skewness | Alpha |
|--------------------------|------|--------------|--------|-------|--------|----------|----------|-------|
| Internet addiction       | 1028 | 33.438±19.89 | 29.00  | 0.00  | 100.00 | 0.729    | 1.064    | 0.940 |
| Perceived social support | 1028 | 58.879±23.41 | 66.00  | 12.00 | 84.00  | -0.709   | -0.754   | 0.972 |
| Loneliness               | 1028 | 40.067±12.55 | 38.00  | 20.00 | 71.00  | -0.237   | 0.570    | 0.909 |
| Psychological resilience | 1028 | 18.494±5.40  | 18.00  | 6.00  | 30.00  | -0.265   | -0.174   | 0.802 |

### The Mean Scale Scores of the Participants

The participants' mean score for internet addiction was 33.43±19.89, their mean perceived social support score was 58.87±23.41, their mean loneliness score was 40.06±12.55, and their mean psychological resilience score was 18.49±5.405 (Table 2).

### Correlations Between the Participants' Perceived Social Support, Psychological Resilience, and Loneliness Scores

As seen in the results presented in Table 3, internet addiction was positively correlated with perceived social support ( $r=0.078$ ;  $P < .01$ ) and loneliness ( $r=0.52$ ;  $P < .001$ ). Psychological resilience was negatively correlated with internet addiction ( $r=-0.498$ ;  $P < .001$ ) and loneliness ( $r=-0.52$ ;  $P < .001$ ). There was no significant relationship between perceived social support and the other 2 independent variables.

### Perceived Social Support, Psychological Resilience, and Loneliness as Predictors of Internet Addiction

How well perceived social support, psychological resilience, and loneliness predicted internet addiction was analyzed using multiple regression analysis. The results of the analysis are presented in Table 4.

According to the regression analysis results, there was a statistically significant cause-and-effect relationship between the independent variables of perceived social support, loneliness, and psychological resilience and the dependent variable of internet addiction ( $F=182.549$ ;  $P < .001$ ). Perceived social support, loneliness, and psychological resilience explained 34% ( $R^2= 0.347$ ) of the total variance in internet addiction. Additionally, perceived social support ( $\beta=0.061$ ;  $P < .01$ ), loneliness ( $\beta= 0.574$ ;  $P < .01$ ), and psychological resilience ( $\beta= -1.128$ ;  $P < .001$ ) significantly predicted internet addiction. Accordingly, psychological resilience predicted internet addiction negatively, while perceived social support and loneliness predicted it positively.

## DISCUSSION

In this study, the relationships between university students' internet addiction levels and their perceived social support, loneliness, and psychological resilience levels were investigated.

**Table 3.** Correlation Between the University Students' Perceived Social Support, Psychological Resilience, and Loneliness Scores

|                          |          | Internet Addiction | Perceived Social Support | Loneliness | Psychological Resilience |
|--------------------------|----------|--------------------|--------------------------|------------|--------------------------|
| Internet addiction       | <i>r</i> | 1.000              |                          |            |                          |
|                          | <i>P</i> | .000               |                          |            |                          |
| Perceived social support | <i>r</i> | 0.078              | 1.000                    |            |                          |
|                          | <i>P</i> | .013*              | 0.000                    |            |                          |
| Loneliness               | <i>r</i> | 0.525              | 0.012                    | 1.000      |                          |
|                          | <i>P</i> | .000**             | 0.702                    | 0.000      |                          |
| Psychological resilience | <i>r</i> | -0.498             | -0.003                   | -0.528     | 1.000                    |
|                          | <i>P</i> | .000**             | 0.916                    | 0.000**    | 0.000                    |

\* $P < .01$ ; \*\* $P < .001$ .

This study found no significant correlation between the variable of perceived social support and the variables of loneliness and psychological resilience but determined that loneliness and psychological resilience were negatively correlated. This was in line with the literature, as there are studies that have found correlations between loneliness and psychological resilience.<sup>28</sup> Additionally, studies have indicated that psychological resilience is a protective factor against loneliness.<sup>28</sup> This result suggested that individuals with low psychological resilience feel more loneliness.

In this study, internet addiction and loneliness were found to be positively correlated, where loneliness predicted internet addiction positively. This result was consistent with those suggesting a correlation between internet addiction and loneliness.<sup>6,9,29</sup> Additionally, studies have shown that loneliness does not have a direct effect on internet addiction and is a compensatory mechanism in internet addiction. Therefore, individuals use the internet to relieve loneliness and have psychological relief.<sup>30</sup> As another view, some studies<sup>31</sup> suggested that there is a two-way relationship between internet addiction and loneliness, and this causes a worrying vicious circle. According to the results of our research and other previous studies, the relationship between students' sense of loneliness and internet addiction may be because students spend more time online and are able to express themselves more easily through the internet. Individuals with high levels of loneliness have problems in establishing and maintaining social relationships and expressing themselves in these

relationships, and therefore, they spend more time online to reduce their anxiety.

In this study, internet addiction and perceived social support were found to be correlated positively, where perceived social support predicted internet addiction positively. Similar to our study, studies have reported a positive correlation between problematic internet use and perceived social support.<sup>32,33</sup> One study found that internet use significantly increased perceived social support.<sup>33</sup> There are also studies suggesting a negative correlation between perceived social support and internet addiction, which was in contrast to this study.<sup>14,34-36</sup> In a study conducted with university students by Savci and Aysan,<sup>35</sup> it was reported that social anxiety in young people positively affected (increased) negative affection, while negative affection positively affected (increased) the duration of daily internet use and internet addiction. Wu et al<sup>34</sup> found that internet addiction and perceived social support were correlated negatively, where internet addiction was negatively predicted by perceived social support. Although the results of different studies on this topic vary, if it is considered that social support and internet addiction are correlated negatively, an increased level of social support might prevent internet addiction. If it is considered that internet addiction and perceived social support are correlated positively, the findings of this study suggested that modern young people come together with their friends more frequently on online platforms, and this increases their internet use. As the internet touches people's daily lives more deeply, people communicate more frequently online,

**Table 4.** Regression analysis results on the prediction of perceived social support, psychological resilience and loneliness in internet addiction

| Dependent Variable | Independent Variable     | $\beta$ | SE    | <i>t</i> | <i>P</i> | Tolerance (T) | VIF   |
|--------------------|--------------------------|---------|-------|----------|----------|---------------|-------|
| Internet Addiction | Constant                 | 27.687  | 3.665 | 7.554    | .000*    |               |       |
|                    | Perceived social support | 0.061   | 0.021 | 2.868    | .004**   | 1.000         | 1.000 |
|                    | Loneliness               | 0.574   | 0.047 | 12.199   | .000*    | .721          | 1.386 |
|                    | Psychological resilience | -1.128  | 0.109 | -10.321  | .000*    | .721          | 1.386 |

\* $P < .001$ ; \*\* $P < .01$ ;  $R^2 = 0.347$ ;  $F = 182.549$ ,  $P < .001$ ;  $T > 0.1$ ; VIF < 10.  
VIF, variance inflation factor.

and this may increase their perceived social support with their increase in internet usage. Some studies have shown that, when social resources are relatively insufficient, some individuals choose the internet as a tool to meet their needs and receive social support, especially when they need to rebuild social networks and communicate with others due to environmental changes.<sup>6,14</sup>

According to the results of this study, psychological resilience and internet addiction were correlated negatively, and internet addiction was predicted by psychological resilience. This result suggested that individuals with high psychological resilience levels spend less time online, and students with high psychological resilience levels may have lower levels of internet addiction. These results were consistent with those reported in the literature.<sup>19,37</sup> Research shows that, in terms of the relationship between problematic use of the internet and daily stress, psychological resilience might have a protective effect.<sup>37</sup>

With all this information in mind, it is believed that the findings of this study, which investigated relationships between internet addiction and loneliness, perceived social support, and psychological resilience, may contribute to the relevant literature. Nonetheless, this study also had some limitations. As the participants consisted of students receiving education at only one state university, the results cannot be generalized to all university students. Therefore, to obtain better results, studies may be conducted with different samples including students studying at different universities in Turkey.

## CONCLUSION

Internet use and need increase day by day, where internet usage becomes prevalent among young people with each passing day. The finding on the positive relationship between internet addiction and loneliness in this study suggested that loneliness increases internet use. The result that the feeling of loneliness is a driving force in internet addiction in Turkey was also supported by studies conducted in many locations in the world. In the most general sense, the reason for all these is that when people feel a deficiency in meeting their social needs, which are desired by all individuals and come from birth, they resort to virtual environments and can meet these social needs in an unlimited way. This situation, in time, may become indispensable for the person and reach the point of addiction. The most important action regarding this issue is to create physical, non-virtual environments where youths can meet these needs of theirs, and in terms of preventing this construct that could turn out to be the most significant diagnosis of addiction in the future, to plan social activities for reducing the feelings of loneliness of young people and encouraging them to establish positive interpersonal relationships. Additionally, increasing university students' psychological resilience may be an effective way to reduce their internet addiction behaviors.

It may be more beneficial for mental health professionals to raise the awareness of individuals on how they can use the internet to facilitate their daily functionality. Moreover, they should focus on factors that affect internet addiction levels, rather than defining the internet as a completely negative variable.

## Limitations

Despite its significant findings, our research had limitations, such as the sample, which consisted only of students from a state university. Therefore, the results cannot be generalized to all university students. Working with larger samples in future studies may provide access to students from every region and sociocultural level, allowing researchers to attain more reliable data to be able to generalize their results. Furthermore, longitudinal studies may be conducted to further evaluate regression between internet addiction and other variables, such as the causal relationship between loneliness, perceived social support, psychological resilience, and internet addiction.

**Ethics Committee Approval:** Ethics committee approval was received from the Ethics Committee of Bartın University (No: 2019/136). Prior to conducting the study, permissions to use the scales were obtained from their original developers via e-mail.

**Informed Consent:** Verbal and written informed consents were obtained from all participants who participated in this study.

**Peer Review:** Externally peer-reviewed.

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