ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

# Levels of Internet Addiction, Loneliness and Related Factors Among University Students: An Example of Türkiye: A Cross-Sectional Study

## Üniversite Öğrencilerinde İnternet Bağımlılığı, Yalnızlık Düzeyleri ve İlişkili Faktörler: Türkiye Örneği: Kesitsel Bir Çalışma

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*This study was prepared based on the findings of Melek Yasemin SEVİMOĞLU's thesis study titled "Internet addiction, loneliness and related factors in university students" (Aydın: Adnan Menderes University; 2019).*

**ABSTRACT Objective:** This cross-sectional study was conducted to determine internet addiction, level of loneliness of university students and related factors. **Material and Methods:** The population of the research is 51,835 undergraduate and associate degree students, and the sample of the research is 1,643 students. The students in sample were randomly selected to represent each of the classes, departments they study. In the research, questionnaire form, Young's Internet Addiction Scale and University of California, Los Angeles Loneliness Scale were used as data collection tools. Data obtained in the study were evaluated in the SPSS 21.0 program and in the electronic environment. **Results:** While 2.1% of the students participating in the research are dependent on the internet, 26% are probable, 71.9% are not. Male gender, single-parent family, low-high income, having another addiction or diagnosed disease were found to be risk factors for internet addiction. Female gender, high mother education, low income level and having a diagnosed disease were found to be risk factors of loneliness. Internet addiction and loneliness level of those affected by internet use and family, friend and lover relationships were found to be higher. **Conclusion:** There is a positive correlation between students' internet addiction level and level of loneliness. It may be recommended to repeat the study in different sample groups and to carry out public health nursing practices related to preventive measures.

**Keywords:** Addiction; internet; loneliness; students; university

**ÖZET Amaç:** Bu çalışma, üniversite öğrencilerinde internet bağımlılığı, yalnızlık düzeyleri ve ilişkili faktörleri belirlemek amacıyla planlanmış kesitsel bir çalışmadır. **Gereç ve Yöntemler:** Araştırmanın evrenini 51.835 lisans ve ön lisans öğrencisi; örneklemini ise 1.643 öğrenci oluşturmuştur. Örneklemdeki öğrenciler, okudukları sınıfları, bölümleri temsil edecek şekilde rastgele seçilmiştir. Araştırmada veri toplama aracı olarak anket formu, Young İnternet Bağımlılık Ölçeği ve "University of California, Los Angeles" Yalnızlık Ölçeği kullanılmıştır. Çalışmada elde edilen veriler SPSS 21.0 programında ve elektronik ortamda değerlendirilmiştir. **Bulgular:** Araştırmaya katılan öğrencilerin %2,1'i internete bağımlı, %26'sı muhtemel bağımlı iken %71,9'u bağımlı değildir. Erkek olma, tek ebeveynli aileye sahip olma, gelirin düşük-yüksek olması, başka bir bağımlılığa ya da tanılı hastalığa sahip olma internet bağımlılığı açısından risk faktörü; kadın cinsiyet, yüksek anne eğitimi, düşük gelir düzeyi, tanılı hastalık ise yalnızlık açısından risk faktörü olarak bulunmuştur. İnternet kullanımından aile, arkadaş ve sevgili ilişkilerinden etkilenenlerin internet bağımlılığı ve yalnızlık düzeyleri daha yüksek bulunmuştur. **Sonuç:** Öğrencilerin internet bağımlılık düzeyleri ile yalnızlık düzeyleri arasında pozitif bir ilişki vardır. Çalışmanın farklı örneklem gruplarında tekrarlanması ve önleyici tedbirlerle ilgili halk sağlığı hemşireliği uygulamalarının yapılması önerilebilir.

**Anahtar Kelimeler:** Bağımlılık; internet; yalnızlık; öğrenciler; üniversite

The most important development in communication technologies has been on the internet, which makes life easier and indispensable for most people.[1,2] With the internet's complex network system, computers between the world are connected and the time and place distinction has disappeared and the world has turned into a global city.[1-3] Many people use the internet in their daily activities such as business, com-

merce, banks, shopping and communication. Fast and easy access to information and facilities saves time and energy.[4] Internet penetration into all areas of life has made life easier for people; however, it has been observed that internet addiction and loneliness have increased due to being away from social environments, spending much time on the internet.[3]

In Türkiye, the rate of internet access is 92% in 2021 according to the households.[5] Studies in the world report that technology addiction in adolescence varies between 4.2% and 21%, and in studies conducted in our country, it is reported that it varies between 2.33% and 14%.[1-4,6]

Especially young internet addicts disrupt, forget or not perform responsibilities like school, work and eating because they see these daily activities as obstacles between them.[1,7] As a result of spending a lot of time on the internet, sleep disturbance, obesity, unbalanced eating and musculoskeletal disorders can be seen. Despite this situation, when they stay away from the internet, they may experience irritable, anxious, sad, troubled and even aggressive.[1,8,9] In another respect, it is stated that people who distanced themselves from the social environment may have a tendency to internet addiction.[10,11] Every addiction takes individuals away from sociability but it is thought that internet addicts reject this situation because they do not feel alone. Being able to access any information or individual at any time, being able to communicate with people from all over the world at any time and having fun enables the development of this idea. It is observed that internet addicts are in a cycle as their addiction increases loneliness levels and loneliness increases their internet usage. It is not surprising that internet addicts spend more time on the internet and have higher levels of loneliness.[1,11] Hebebci and Shelley also reported in their study that internet use increases the level of loneliness.[12]

This research was conducted to determine levels of internet addiction, loneliness and related factors among university students.

Research questions:

1. What is the level of internet addiction of university students?

2. What is the level of loneliness of university students?

3. Is there a relationship between university students' level of internet addiction and loneliness?

4. What are the factors associated with the level of internet addiction and loneliness of university students?

## MATERIAL AND METHODS

**Participants:** This cross-sectional study was conducted between September 2018 and September 2019 with students studying at a university in Aydın. The population of the research consisted of 51,835 undergraduate and associate degree students studying at the university in 2018-2019. In the sample size calculatio, effect length was accepted as 0.10 (small), power was accepted as 0.80 (1-beta), alpha was accepted as 0.05 and 1,643 students were reached.[1,2,4] Proportionate stratified random sampling method was used in the study. In the sample, students were randomly selected to represent each layer from the classes and departments the survey was done in the classroom and through self-reports.

**Measures:** The questionnaire form and Young's Internet Addiction Scale and University of California, Los Angeles Loneliness Scale (UCLA-LS) were distributed to the participants who met the research criteria and agreed to participate, and the questionnaires were observed for 30 minutes, the parts that are not understood were explained and the completed forms were collected.

**Questionnaire Form:** In the research, a questionnaire form prepared with the help of information in the literature was used to measure the level of internet addiction and related factors among students. In the prepared questionnaire form, the demographic features of the students and their features related to internet use are measured.[1,4,13]

**Young's Internet Addiction Scale:** The Internet Addiction Scale was developed by Young and its validity and reliability studies were done by Bayraktar.[14,15] The scale consists of 20 questions. Cronbach alpha internal consistency coefficient of the scale is 0.895, and the calculated values show that the scale translated into Turkish is valid and reliable. In the evaluation of the scale, 80 and over defined as "in-

ternet addict", fields between 50 and 79 are defined as "risky internet usage", which has some problems with the internet in their daily lives and 49 and below defined as the "average internet user" who does not have any problems related to internet usage in their life. In this study, the alpha coefficient of the Young's Internet Addiction Scale was found to be 0.70.

**UCLA-LS:** The scale was developed by Russell et al., translated into Turkish by Yaparel, and validity and reliability studies were done by Demir *(Yaparel R. Sosyal ilişkilerdeki başarı ve başarısızlık nedenlerinin algılanması ile yalnızlık arasındaki bağlantı [Master's thesis] Ankara: Hacettepe University; 1984).*[16-18]

High scores from the scale indicate that the level of loneliness is high. The scale evaluates how often feelings and thoughts about social relationships are experienced on a four-point Likert-type scale and consists of 20 items, 10 of which are coded revers and 10 of which are coded flat. In this study, the alpha coefficient of the UCLA-LS was found to be 0.90.

**Data Analysis:** The data obtained were evaluated in the SPSS package program (Version 21, 00 Chicago IL, USA). Gauss curve was evaluated and mean score, minimum and maximum score width, Kolmogorov-Smirnov test significance level were calculated. The data were found to be in accordance with the normal distribution. In the evaluation of the data; descriptive statistical analyzes (mean, standard deviation, frequency, percentile), Student t-test, and one-way ANOVA (with post hock Bonferroni) tests were used for comparisons of more than two groups. Statistical significance level was accepted as p<0.05.

**Ethical Adherence Statement:** Before starting the research, ethics committee approval (date: June 27, 2018, no: 50107718-050.04.04/) from Aydın Adnan Menderes University Nursing Faculty Non-Interventional Clinical Research Ethics Committee, institutional permission from Aydın Adnan Menderes University and consent from the participants were obtained. This study is a master's thesis supported by Aydın Adnan Menderes University Scientific Research Projects Unit (HF-18009). The study was conducted in accordance with the principles of the Declaration of Helsinki. Written consent was obtained from the participants.

## RESULTS

Of the students, 72.7% are female and the average age is 20.77±2.30. The family type of 82.5% of the students is in the nuclear family structure and the income of 57% is equal to the expenses. It was observed that 72.7% of the students did not use an addictive substance, 14.5% of students smoke, 84.6% of the students do not have a diagnosed disease. It was found that internet usage of 58.8% of students does not affect their relationship with their families, internet usage of 46.9% of students positively affects their relationship with their friends and internet usage of 52.2% of students does not affect their relationship with their lovers (Table 1).

**TABLE 1:** Individual characteristics of students.

| Characteristics of students | n | % |
|---|---|---|
| Gender | | |
| Female | 1,195 | 72.7 |
| Male | 448 | 27.3 |
| Family type | | |
| Nuclear family | 1,353 | 82.5 |
| Extended family | 259 | 15.8 |
| Other (child protection agency, single parent etc.) | 28 | 0.7 |
| Economic status | | |
| Income is less than expenses | 541 | 33.1 |
| Income is equal to expenses | 932 | 57.0 |
| Income is more than expenses | 161 | 9.9 |
| Addiction | | |
| No | 1,233 | 72.7 |
| Smoking | 404 | 14.5 |
| Alcohol | 26 | 1.6 |
| Drug | 16 | 1.0 |
| Unspecified | 167 | 10.2 |
| Diagnosed disease | | |
| No | 1,380 | 84.6 |
| Yes | 252 | 15.4 |
| Relationship with family | | |
| No effect | **959** | 58.8 |
| Positively affected | 231 | 14.2 |
| Negatively affected | 441 | 27.0 |
| Relationship with friend | | |
| No effect | 661 | 40.9 |
| Positively affected | **759** | 46.9 |
| Negatively affected | 198 | 12.2 |
| Relationship with lover | | |
| No effect | **786** | 52.2 |
| Positively affected | 472 | 31.3 |
| Negatively affected | 249 | 16.5 |
| Age | X̄±SD | 20.77±2.30 (18-48) |
| | (minimum-maximum) | |

SD: Standard deviation; X̄: Mean.

According to the Young's Internet Addiction Scale score, 2.1% of the students were determined to be dependent, 26% as probable addicted and 71.9% as not dependent.

Male students' Young's Internet Addiction Scale scores are high, female students' UCLA-LS scores are high. UCLA-LS mean scores of students whose income is less than their expenses were found to be higher than those of other groups (Table 2).

Young's Internet Addiction Scale scores of students who have cigarette addiction, alcohol addiction, drug addiction or diagnosed disease are higher than students who do not have them. UCLA-LS scores of students who have a diagnosed disease are higher than students who do not have (Table 3).

| **TABLE 2:** Comparison of students' characteristics with Young's Internet Addiction Scale and UCLA Loneliness Scale scores. | | | |
|---|---|---|---|
| **Personal characteristics/Young's Internet Addiction Scale and UCLA Loneliness Scale** | **n** | **Average of Young's Internet Addiction Scale scores** $\overline{X}\pm SD$ | **Average of UCLA Loneliness Scale scores** $\overline{X}\pm SD$ |
| Gender | | | |
| Female | 1,195 | 30.24±15.10 | 48.01±5.41 |
| Male | 448 | 35.81±17.45 | 47.06±5.69 |
| t, p | 6.376; 0.001 | 3.102; 0.002 | |
| Family type | | | |
| Nuclear family | 1,353 | 31.71±16.13 | 47.76±5.41 |
| Extended family | 259 | 31.63±15.05 | 47.21±5.89 |
| Other (child protection agency, single parent etc.) | 28 | 33.28±16.37 | 51.00±4.18 |
| ANOVA, p | | 0.138; 0.871 | 6.167; 0.002 |
| Economic status | | | |
| Income is less than expenses | 541 | 32.83±16.64 | 48.21±5.85 |
| Income is equal to expenses | 932 | 30.69±15.03 | 47.48±5.14 |
| Income is more than expenses | 161 | 33.81±17.50 | 47.82±6.20 |
| ANOVA, p | 4.719; 0.009 | 3.008; 0.050 | |

SD: Standard deviation; UCLA: University of California, Los Angeles; $\overline{X}$: Mean.

| **TABLE 3:** Comparison of students' health features with Young's Internet Addiction Scale and UCLA Loneliness Scale scores. | | | |
|---|---|---|---|
| **Health characteristics Young's Internet Addiction Scale and UCLA Loneliness Scale** | **n** | **Average of Young's Internet Addiction Scale scores** $\overline{X}\pm SD$ | **Average of UCLA Loneliness Scale scores** $\overline{X}\pm SD$ |
| Smoking addiction | | | |
| No | 1,233 | 30.98±15.65 | 47.68±5.48 |
| Yes | 404 | 34.22±16.69 | 47.92±5.59 |
| t, p | 3.555; 0.001 | 0.750; 0.453 | |
| Alcohol addiction | | | |
| No | 1,450 | 31.30±15.80 | 47.70±5.52 |
| Yes | 187 | 35.51±16.76 | 48.05±5.45 |
| t, p | 3.410; 0.001 | 0.814; 0.416 | |
| Drug addiction | | | |
| No | 1,600 | 31.65±15.97 | 47.74±5.48 |
| Yes | 37 | 37.48±15.07 | 47.94±6.82 |
| t, p | | 2.200; 0.028 | 0.225; 0.822 |
| Diagnosed disease | | | |
| No | 1,380 | 31.49±15.96 | 47.63±5.52 |
| Yes | 252 | 33.68±16.00 | 48.40±5.15 |
| t, p | 2.004; 0.045 | 2.058; 0.040 | |

SD: Standard deviation; UCLA: University of California, Los Angeles; $\overline{X}$: Mean.

Also, same scores of students who think it positively affects their relationships with their families are lower than students who think it negatively affects. UCLA-LS scores of students who think it does not affect are lower than those of the students who think it positively or negatively affects.

Young Internet Addiction Scale scores of students who think that internet use negatively affects their relationships with their families, with friend and with lower are high.

UCLA-LS scores of students who think it does not affect are lower than those of students who think it positively or negatively affects (Table 4).

A significant difference was found between students' addiction levels and UCLA-LS scores. UCLA-LS scores of addicted students are higher than potential addicted students, and scores of potential addicted students are higher than non-addicted students. There is a positive correlation between students' internet addiction level and level of loneliness in the study (Table 5).

# DISCUSSION

In this study, it was found that 2.1% of the students are addicted the internet and 26% are potentially addicted. Şahin reported internet addiction rate as 1.3%, and Kuss et al. reported as 3.2%.[19,20] Younes et al. reported the potential prevalence of internet addiction as 16.80%.[21] The similarity between the findings of the literature and our finding is remarkable. Based on

| **TABLE 4:** Comparison of students' affecting the interpersonal relationship features of internet usage with Young's Internet Addiction Scale and UCLA Loneliness Scale scores. | | | |
|---|---|---|---|
| Effects in interpersonal relationships/ Young's Internet Addiction Scale and UCLA Loneliness Scale | n | Average of Young's Internet Addiction Scale scores $\bar{X}\pm SD$ | Average of UCLA Loneliness Scale scores $\bar{X}\pm SD$ |
| Relationship with family | | | |
| No effect | **959** | 28.53±14.43 | 47.34±5.26 |
| Positively affected | 231 | 31.83±16.54 | 48.11±5.19 |
| Negatively affected | 441 | 38.82±16.41 | 48.48±5.93 |
| ANOVA, p | | 68.306; 0.001 | 7.166; 0.001 |
| Relationship with friend | | | |
| No effect | 661 | 27.96±15.00 | 47.05±5.55 |
| Positively affected | **759** | 33.37±15.51 | 48.17±5.10 |
| Negatively affected | 198 | 38.76±16.97 | 48.41±6.17 |
| ANOVA, p | | 44.139; 0.001 | 7.166; 0.001 |
| Relationship with lover | | | |
| No effect | **786** | 28.76±14.66 | 47.34±5.52 |
| Positively affected | 472 | 34.35±16.03 | 48.25±5.09 |
| Negatively affected | 249 | 37.35±16.68 | 48.21±5.97 |
| ANOVA, p | | 37.640; 0.001 | 5.066; 0.006 |

SD: Standard deviation; UCLA: University of California, Los Angeles; $\bar{X}$: Mean.

| **TABLE 5:** Comparison of students' Young's Internet Addiction Scale with UCLA Loneliness Scale scores. | | | |
|---|---|---|---|
| | | UCLA Loneliness Scale | |
| Young's Internet Addiction Scale | n (%) | $\bar{X}\pm SD$ | F, p |
| Addicted | 34 (2.1) | 50.88±7.91 | 17.311 |
| Potential addicted | 427 (26.0) | 48.77±6.15 | 0.001 |
| Non-addicted | 1,182 (71.9) | 47.29±5.08 | |
| Young's Internet Addiction Scale | | r=0.176 | |
| | | p=0.001 | |

SD: Standard deviation; UCLA: University of California, Los Angeles; $\bar{X}$: Mean.

the results of our findings, it is possible to say that two out of every hundred young people in the society are internet addicted and that this situation may affect the next generations even more negatively.

In our study, internet addiction levels of male students and loneliness levels of female students were found high. No difference was found between students' class, marital status, longest living place and residence, and internet addiction and loneliness. In their studies, Terzioğlu, Arcan and Yüce reported that there was no significant difference between the sex of the participants and their level of internet addiction, and Younes et al., Şahin and Yıldız expressed that men's internet addiction levels are higher.[3,19,21-23] Schou Andreassen et al. emphasized that the use of social media is positively related with being female and single, and playing video games with being male and single.[24] Király et al. reported that men play more online games and internet addiction is positively releated to online games, social networking and online chatting.[25] In their studies, Atli et al., Seçim et al. emphasized that the loneliness levels of male male students are higher.[26,27]

In our study, the differentiation of internet addiction and loneliness levels of individuals according to gender suggests that this situation is caused by the fact that men spend more time on the internet especially for games, entertainment and chat, and women are separated from family and previous friends, and unsatisfying social experiences at university.

Loneliness levels of the students with single parent and institutional family structure were found higher in our study. In their study, Yılmaz et al. did not find a significant difference between loneliness and family type.[28] On the other hand, Seçim et al. reported that the family structure and number of siblings have an effect on loneliness score.[27] This situation brings to mind the idea that the unusual family structure causes the possibility of individuals to see themselves alone.

In our study, internet addiction levels of those whose income is equal to expenses, and loneliness levels of those whose income is less than expenses is found lower. Yıldız emphasized that high income students' internet addiction scale score is lower.[23] However, Terzioğlu reported that the level of addiction increases as the income level increases.[22] Jensen has reported that as the income situation increases, loneliness and depression decrease.[29] It is thought that economic prosperity positively affects the level of being social, the use of technological products and internet networks and increases the level of internet addiction as a negative effect of this situation.

In our study, internet addiction levels of students with smoking, alcohol, drug addiction and diagnosed diseases, and loneliness levels of those with diagnosed diseases were high. In their study, Younes and et al. reported that there is no difference between smoking and internet addiction.[21] In another study, Pontes et al. reported that internet addiction can cause serious health problems.[8] Our study results show that addiction types such as smoking, alcohol, and drug addiction can trigger other addictions, and having a diagnosed disease can also affect both loneliness and internet addiction levels as it can restrict social relationships.

In our study, internet addiction and loneliness levels were found higher among those whose family, friend and lover relationships were affected by internet use. In Terzioğlu's study, the finding that those who have romantic relationships have higher levels of internet addiction is one of the findings in the literature.[22] Özarıcı and Cangöl Söğüt found a significant difference between students' Internet Addiction Scale scores and their age, perception of friendship relations, perception of school success and leisure activities.[30]

According to our results, it is possible to say that those who think that their relationships are not affected spend less time on the internet, internet use does not prevent their social lives and they more rarely feel alone.

There is a positive correlation between students' internet addiction level and level of loneliness in our study. In their study, Ümmet and Ekşi emphasized that there is a positive relationship between all sub-dimensions of internet addiction and loneliness.[31] In their study, Yalaz Seçim et al. reported that internet use is one of the factors predicting loneliness.[32] Zhang et al. and Najafi et al. also draw attention to the rela-

tionship between loneliness and internet addiction.[33,34] Guo et al. found that the quality of social relationships is a strong predictor of internet addiction. He also stated in his article that loneliness mediates the relationship between the quality of social relationships and internet addiction.[35] Loneliness, which is a psychological situation, positively correlates with internet addiction and these two negative situations trigger each other.

**Limitations of the Study:** This study is limited to university students of a province.

# CONCLUSION

It has been determined that 2.1% of the students are internet addict, 26% are potential addict, 71.9% are non-addict. Being male, single-parent family, low-high income, having another addiction or diagnosed disease, and using internet for entertainment purposes were found to be risk factors for internet addiction and being female, high mother education, low income level, and having a diagnosed disease were found to be risk factors for loneliness. Internet addiction and loneliness levels of those whose family, friend and lover are affected by internet use were found to be higher. There is a positive correlation between students' internet addiction level and level of loneliness.

In line with these results, it may be recommended to consider the risk factors for loneliness and internet addiction in universities, and to increase social activities especially for students at risk. Also, if these research findings are tested and verified with different research findings, it can guide public health nursing practices aimed at raising awareness about internet addiction and loneliness especially in young people, addressing the issue primarily, preventing it, and taking preventive measures.

### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

*Idea/Concept: Melek Yasemin Sevimoğlu; Design: Filiz Adana; Control/Supervision: Filiz Adana, Data Collection and/or Processing: Melek Yasemin Sevimoğlu; Analysis and/or Interpretation: Filiz Adana; Literature Review: Filiz Adana, Melek Yasemin Sevimoğlu; Writing the Article: Melek Yasemin Sevimoğlu; Critical Review: Filiz Adana; References and Fundings: Filiz Adana.*

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