

Evaluation of the Relationship Between Internet Addiction and Depression in Adolescents

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Abstract

Objectives:

This study aims to examine the levels of internet addiction in adolescents and its relationship with depression and with certain sociodemographic characteristics.

Methods:

A cross-sectional and survey type study was conducted on 300 adolescents, aged 10-18 years.

Results:

187 (62.3%) of the 300 participants included in our study were male. Of the participants using the internet, 227 (75.6%) were normal internet users, 54 (18%) were risky internet users, and 10 (3.4%) were internet addicts (the participants were divided into three groups). There was no statistically significant difference between the groups in terms of the presence of depression ($p=0,33$). In addition, a statistically significant but weak positive correlation was found between the internet addiction level and the depression score ($r=0,194$, $p=0,001$). A statistically significant positive correlation was found between the duration of internet use and the internet addiction level (normal, risky, addict) ($r=0,34$, $p<0.001$) and the internet addiction score ($r=0,35$, $p<0.001$).

Conclusion:

The internet addiction level (moderate, risky and addict) and the duration of internet use increased with the depression score. It was concluded that internet addiction causes a tendency for depression in many aspects.

Keywords: *Internet addiction, Depression, Aggression, Adolescents*

Introduction

In virtue of the internet, information can be accessed easily and fast. In addition, information is stored and shared on this network.¹ The internet has an important place in our daily live, but recently, unhealthy internet use has increased.^{2,3} Young internet addiction is defined as an uncontrollable desire of the internet use, which is more than planned, the occurrence of internet withdrawal symptoms (intense nervousness, aggression etc.) and the progressive deterioration of the professional, social and family life of a person.⁴ In the international multicenter epidemiological studies on the prevalence of

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pathological internet use: the prevalence has been evaluated as 1% in America, 2-18% in Asian countries, 1-12% in Middle Eastern countries and 1-9% in European countries.⁵ In our country, the prevalence was found to be 4.5%.⁶

Internet use is more common among adolescents worldwide, and the prevalence of depression among adolescents is increasing due to various factors. Therefore, in recent years, the adolescence period has become the focus of studies on internet addiction and depression.⁷ The curiosity and desire to follow the technological and scientific innovations expose adolescents to the risk of internet addiction.⁸

Studies have shown that internet addiction contributes to the development of depression symptoms.⁹ So, investigating the prevalence of internet addiction in adolescents and its relationship with psychiatric disorders can provide useful information in terms of diagnosis, treatment and psychosocial support.^{10,11}

Internet addiction, as in other addictions, may cause some consequences that will affect the mental and physical health, all social relations, behaviors and attitudes of the individual negatively. As a result of mentally and continuously engaging in internet-related matters, the individual fails to fulfill the responsibilities in the professional, academic and social life and the success gradually decreases.¹²

Although there is no proven method for the treatment of internet addiction, methods such as psychotherapy and pharmacotherapy are used in order to find a solution to this problem.¹³ However, it is important to determine the spread of the internet use among the adolescents and the factors influence this, which may give some hint to fight this issue. This study is a cross-sectional and survey type study, which aims to examine the characteristics and addiction levels of internet use, and its relationship between depression and some sociodemographic characteristics in adolescents between 10-18 years of age.

Materials and Methods

The study was conducted on adolescents between 10-18 years of age, who applied to the Child and Adolescent Polyclinic of Dicle University, Faculty of Medicine, Children's Hospital. The study was a cross-sectional and survey type study. The study was conducted between the dates 22.10.2020 – 22.02.2021, which is approved by the Dicle University Medical Faculty Ethics Committee. Ethical consent was obtained from the participants.

Inclusion Criteria

Adolescents who were able to fill out the survey and the informed ethical consent were included in the study.

Exclusion Criteria

- If the person filling out the survey is illiterate, has any physical or health condition (previously diagnosed with any psychotic or mental illness including depression, has a vision disorder, motor disorders or substance addiction),
- If the person does not speak Turkish or is illiterate,
- If the person has any additional chronic disease that could affect the results (chronic respiratory, hematologic or gastrointestinal diseases), they were excluded from the study.

Data Collection Tools of the Research

Three different data collection tools were used in the study. These were Young's Internet Addiction Test, Sociodemographic Data Form and The Children's Depression Inventory.

Sociodemographic Data Form: This form was consisting of 20 questions, created by using literature information to determine the sociodemographic characteristics of the participants.

Young's Internet Addiction Test: It is a scale consisting of twenty questions and six Likert-type response anchors for each question. The scale includes the options "never", "rarely", "sometimes", "often", "very often", and "always". Participants mark only one of these options and receive 0, 1, 2, 3, 4, 5 points respectively, according to the options they marked.¹⁴ Its reliability and validity have been proven in our country.¹⁵ In our study, as a result of the statistical analysis of the validity and reliability of the data, the data were proven reliable with a Cronbach's Alpha internal consistency coefficient of 0.899, and valid with a variance rate of 53.445. In the 2001 study that Bayraktar first adapted the scale for Turkish, according to the answers given to the 20 questions, those who scored between 0-49 were classified as moderate internet users, those who scored between 50-79 as risky internet users, and those who scored between 80-100 were classified as internet addicts.¹⁶

The Children's Depression Inventory: In order to determine the depression levels of the participants in our study, the "Children's Depression Inventory" comprised of 27-items, developed by Kovacs was used,⁷ which was adapted for Turkish children and adolescents between the ages of 6-19.¹⁸ Each item receives a score of 0, 1 or 2 depending on the severity of the symptom. The maximum score is 54. The recommended cut-off score is 19, which means the scores 0-18 is considered as not-depressive and 19-54 as depressive. The depression score was calculated by adding the scores of all of the answers. The lowest score that could be obtained from this scale was 0, and the highest score was 54. In this scale, an increase in the depression score indicated an increase in the level of depression.

Statistical Analysis

Statistical analysis was carried out using the SPSS 18 software. The suitability of the variables for normal distribution was examined by visual (histogram and probability plots) and analytical methods. Descriptive statistics were presented using median for quantitative not normally distributed variables, mean for normally distributed variables, and frequency for ordinal variables. For the relationships between variables, at least one of which was not normally distributed or was ordinal, correlation coefficients and statistical significance were calculated by Spearman's test. Between the groups, not normally distributed quantitative variables and ordinal variables were compared using the Kruskal-Wallis test. Categorical variables between the groups were compared using the Chi-square test. The cases, in which the p-value was less than 0.05, were evaluated as statistically significant results.

Results

187 (62.3%) of the 300 participants included in our study were male. The sociodemographic characteristics of the participants are shown in Table 1. Most of the participants were high school students (79%). The median age of the patients was 15 (10-18). 97% of the participants were internet users.

The median score of internet addiction of the participants was 36 (2-91), and the median score of depression was 27 (2-54). 291 participants using the internet were divided into three groups (moderate internet users, risky internet users, internet addicts) according to the internet addiction scale. Of the participants using the internet, 227 (75.6%) were moderate internet users, 54 (18%) were risky internet users, and 10 (3.4%) were internet addicts.

No statistically significant difference was found between the groups in terms of gender ($p=0.98$), the education levels ($p=0.57$), the age ($p=0.21$), family income ($p=0.83$), grade retention ($p=0.68$), the presence of depression ($p=0.33$, Table 2).

When the relationship between the internet addiction scores of the participants and independent factors was evaluated, no statistically significant positive relationship was found between the age and the internet addiction score ($p=0.68$, $r=-0.24$). On the other hand, a positive and statistically weak - moderately significant relationship between the internet addiction score and the depression score ($p<0.001$, $r=0.36$), a statistically significant but weak positive correlation between the internet addiction level and the depression score ($r=0.194$, $p=0.001$), a statistically significant positive correlation between the duration of internet use and the depression score

($r=0,198$, $p=0.001$), a statistically significant positive correlation between the duration of internet use and the internet addiction level (moderate, risky, addict) ($r=0,34$, $p=<0.001$) and a statistically significant positive correlation between the duration of internet use and the internet addiction score ($r=0,35$, $p=<0.001$) were found.

Discussion:

In a cross-sectional study conducted by Goel et al. on 987 adolescents between the ages of 16-18, they found that 74.5% of the participants were moderate internet users, 24.8% were possible addicts and 0.7% were internet addicts.¹⁹ In a study conducted by Siomos et al. on 2200 students between the ages of 12-18, internet addiction was detected in 8.2% of the students.²⁰ 10 (3.4%) of the participants in our study were internet addicts and so the percentage of internet addicts was relatively low, consistent with the literature.

In a survey type study conducted by Kraut et al. on 1965 participants, it was stated that males use the internet more frequently than females in the adolescence period.²¹ In an online survey conducted by Tahiroğlu et al. on 3975 adolescent students, it was found that internet use more than 12 hours per week was more frequent in males (11.1%) than females (4%).²² In a study conducted by Batıgün et al. on 213 participants between the ages of 18-27, on internet use and addiction, no difference was found in terms of gender.²³ In the survey study conducted by Griffiths et al. on 218 university students, the participants were evaluated in terms of seven different internet addictions such as Facebook addiction and gaming addiction, and it was found that internet addiction among females was higher than among males.²⁴ So, there is not enough data to reach a firm conclusion about the role of gender in internet addiction. In our study, no statistically significant difference was found between internet addiction and gender. Hence, we may conclude that the rate of internet use is independent of gender.

The number of studies examining the relationship between internet addiction level and age in adolescents is limited. In a study conducted by Bölükbaş et al. on a total of 558 participants, 283 females and 275 males attending 6th, 7th and 8th grades, using the internet addiction scale, no significant difference was found between internet addiction and age.²⁵ The current study also found no statistically significant difference between internet addiction and age.

In a study conducted on high school students, it was found that digital addiction was not affected by the class levels of the students.²⁶ A study by Lam et al. on 1618 high school students between the age of 13-18 in 2009 demonstrated that the rate of risky internet users and internet addicts decreased as the level increased.²⁷ In general, based on the literature data, the level of addiction has a decline with increasing the level of the classes. This situation can be expected due to the fact that the students

use the internet less, as they prepare for university admission tests towards the end of high school. However, as in our study, the negative correlation rate of the internet use with the education levels was not supported by other reports. The results may be affected by many factors such as access to the internet, living with family or going to a boarding school, the school policy on the internet use, type of the study, and the population of the study.

Students may spend less time doing research and homework when they spend more time on the internet than necessary. So, their academic success of students may be adversely affected.²⁸ Soydan et al. reported that internet addiction shows dependence on the academic achievements of the students, conducted on a study involving 393 university students aged 18-39 years.²⁸ The internet addiction scores of the students with medium or low academic achievements were significantly higher than those of the students with high academic achievements. Another study by Mayda et al. involving 1000 students living in university dormitories, using Goldberg's Internet Addictive Disorder Scale consisting of 22 questions indicated that the internet addiction rates of the students with a history of grade retention were found to be statistically significantly higher than those of the never-retained students.²⁹ Generally, grade retention may be an indirect indicator of academic success, but the number of studies examining the relationship between grade retention and internet addiction is limited. Basically, a large number of the work includes the university students where many factors play roles in the rate of the internet use. They may be listed as the less parental pressure, non-compulsory class attendance, the environment, the more liberal social life. In our study, no statistically significant difference was found between the retained and never-retained students in terms of internet addiction. Our study was conducted on high school and middle school students. Therefore, our results should be supported by other studies that will be conducted to university students.

Studies examining the relationship between family income and internet addiction are limited in the literature. A study by Lam et al. on 1618 high school students between the age of 13-18 presented that as the family income decreases as with decreasing the scores obtained from the internet addiction scale.²⁵ Another report by Park et al., which consisted of 903 secondary and high school students documented no relationship between the level of family income and internet addiction.³⁰ It can be deduced that the relationship between the family income and internet addiction may decrease over time due to the widespread use of devices such as tablets, computers and mobile phones that provide internet access and as the cost of internet access is reduced. In our study, no relationship was found between the family income and internet addiction. When the current studies in the literature were evaluated, family income was classified differently; and evidently it would be difficult to draw a

general conclusion on this issue, as the assessment of family income may vary according to the socioeconomic status of the country and the differences in regions, in which the studies were conducted.

Internet addiction can be a cause or an effect of depression. A person who has depression due to different psychosocial factors may turn to the internet and consequently become an internet addict, or a person may become depressed due to internet addiction. Adolescents that are addicted to the internet have stated that they think of the internet as an environment that reduces their depressive moods.⁸ There are many studies in the literature that examine the relationship between internet addiction and depression. A survey by Kim et al. on 1573 high school students, using the internet addiction scale, reported a positive significant relationship between internet addiction and depression and suicidal thoughts.³¹ A study by Liu et al., demonstrated a positive significant relationship between problematic internet use and depression, aggressive behavior and substance use in adolescents.³² A different study by Şahin et al, using the Beck Depression Inventory and the Internet Addiction Scale, showed a statistically significant relationship between internet addiction and depression.³³ In our study, no difference was found between the groups in terms of depression. The outcomes of the current work are similar to those previously conducted in our country. A statistically significant but weak-moderate positive relationship was found between the internet addiction score and the depression score. In our study, it was found that as the internet addiction level as well as the duration of internet use is positively correlated with the depression score. So, it was concluded that internet addiction causes a tendency for depression in many aspects. Consequently, our results demonstrate that the association of internet addiction with depression are multifactorial, and they are partially in line with the literature.

It has been shown in many studies that there is a relationship between the increase in the duration of internet use and internet addiction.^{34,35} A common result in the studies is that addicted individuals use the internet longer in a day than non-addicts. In our study, in accordance with the literature, a positive relationship was found between the duration of internet use and the internet addiction level and the internet addiction score. It can be said that there is a positive relationship between the daily duration of internet use and internet addiction in adolescents. In addition, it can be said that the level of addiction may increase in proportion to the amount of use.

Limitations of the Study

Since our study was conducted only in Dicle University Medical Faculty and in a local area, it is difficult to draw a general conclusion and therefore it may not be accounted for the general of the adolescent population in the region. It is believed that conducting studies including adolescents from

different regions will be beneficial in terms of the reliability and efficiency of our results. In addition, the internet addiction score is used for screening purposes and cannot be used for clinical evaluation. Therefore, the fact that the patients were not clinically evaluated so could negatively affect the frequency of depression in our study.

Conclusion

In our study, it was found that as the internet addiction level (moderate, risky and addict) and the duration of internet use are positively correlated with the depression score. So, it was concluded that internet addiction causes a tendency for depression in many aspects. Since internet addiction is one of the reasons for the increase in the prevalence of depression in adolescents today, in the current health system, information, counseling and support should be provided to families about internet addiction and depression in adolescents. Families should also be educated on this issue. In schools, education about conscious use of internet for students should be emphasized. Necessary precautions should be taken for adolescents to socialize and to prevent internet addiction. Different and useful methods of screening should be developed for the early diagnosis of psychiatric symptoms due to internet addiction by conducting multicenter studies on this subject with wider participation.

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