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INTERNET ADDICTION AND ITS IMPACT ON PHYSICAL HEALTH

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ABSTRACT

Aims: Internet addiction, a recently emerged term in medical literature, has significant physical effects on the young generation. In this research, controversial effects of internet addiction on physical health have been investigated among the students of Trakya University School of Medicine, who constitute a part of the population at risk.

Methods: The study included 327 medical students. The correlation between internet addiction and physical complaints associated with internet usage and its relation with gender, purpose and duration of internet usage were investigated. The data were obtained by using surveys and Internet Addiction Scale. To evaluate the data; descriptive statistics, Correlation, Mann-Whitney U tests, Cronbach alpha methods and survey with 16 questions were used for statistical analysis.

Results: There is a statistically significant difference in terms of Internet Addiction Scale score between internet addiction and physical complaints such as headache, feeling of stiffness, backache, neck pain and insomnia. Internet Addiction Scale score and time spent on the internet showed a statistically significant correlation.

Conclusion: Increase in internet usage leads to many physical health problems, which may cause serious and permanent damage to physical health. Therefore, the required attention must be given to this subject especially for the benefit of younger generations.

Keywords: Internet, medical student, headache, neck pain

INTRODUCTION

Computers and internet, substantial technological developments of the 21st century, constitute an indispensable part of daily life. They are used mostly for education, communication, entertainment, gaming, shopping also for access to current news. The easy accessibility during every hour of the day may be both advantageous and disadvantageous for the young generation (1, 2).

Bratter T.E and Forrest G.G. (3) defined addiction as a behavioral pattern of compulsive drug use characterized by overwhelming involvement with the use of a drug and the securing of its supply, as well as a strong tendency to relapse after completion of withdrawal. Traditionally, the term "addiction" has been associated with psychoactive substances such as alcohol and tobacco. Features of internet addiction were initially proposed by Young (4) in 1998 based on the criteria of pathological gambling, later adapted and included in The Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-V). Before this, the term "internet addiction" was first proposed by psychiatrist Dr. Ivan Goldberg to describe the pathological usage of internet (5).

Inspired by these, in this research, controversial effects of internet addiction on physical health problems have been investigated among the students of Trakya University School of Medicine, who constitute a part of the population at risk (2).

MATERIAL AND METHODS

This study cross-sectional descriptive survey study was approved by Scientific Research Ethics Committee of Trakya University Medical Faculty. The study was

carried out in Trakya University Hospital between September 2017 and March 2018 including participants as medical students from Trakya University School of Medicine from 1st to 6th grades. Among medical students of Trakya University a sample group was formed by using layered and random sampling methods. The Internet Addiction Scale (IAS) and a questionnaire were applied to the participants. The questionnaire consisted of questions regarding the demographical data of subjects, their purpose of internet use (education, communication, entertainment, gaming, shopping, access to current news), behaviors and problems of subjects that might be associated with internet use such as physical complaints, weight gain, snacking during internet usage. The physical complaints consisted headache, feeling of stiffness, backache, neck pain, insomnia, dizziness, dry-eyes, wrist pain and stomachache. The questionnaires were distributed to the predetermined participants and collected after the questions were answered.

The Internet Addiction Scale developed by Selim Günüç and Murat Kayri (6) was used in our study. All of the 35 items on the scale, were positive and scaled by a five-point Likert scale. Attitudes in the Likert form are rated as "I definitely do not agree ", "I do not agree", "Neutral", "I agree" and "I completely agree". It was found that the discrimination levels of the items varied between 0.420 and 0.681. The scale consists of 4 sub-items, the first factor is called "Withdrawal", the second factor is "Controlling Difficulty ", the third factor is "Disorder in Functionality" and the fourth factor is "Social Isolation Dimensions".

Taking S. Aslan and R. Aylaz's (1) study titled "Evaluation of internet addiction levels and possible health problems related to the academicians" as a reference and considering the incidence of neck pain which is the most common physical problem, as 11.3% and the tolerable difference as 5%; it is estimated that 393 cases should be taken with 0.05 probability of error and 80% power. All students in Trakya University School of Medicine were randomly selected according to their stratified and random sampling methods by classifying their strata according to their study year and gender. 78 students from the 1st year; 81 students from the 2nd year; 80 students from the 3rd year; 79 students from the 4th year; 64 students from the 5th year; 55 students from the 6th year were selected . Of these, 56 students from the 1st year; 65 students from the 2nd year; 79 students the 3rd year; 51 students from the 4th year; 47 students from the 5th year; 29 students from the 6th year were reached. As a result, although the study was planned to be conducted with 437 subjects, only 327 of those could be reached.

Research data were entered in the Excel sheet. The analysis was done using SPSS version 19.0 (SPSS Inc. Chicago, Il, USA). The internal consistency reliability of the IAS was assessed by calculating Cronbach's alpha. Normal distribution suitability is tested with Shapiro Wilk test. Kruskal Wallis Variance Analysis and Mann-Whitney U test with Bonferroni correction were used to compare the differences in subscales of the questionnaire between students from different study years. Spearman's rho correlation coefficient was calculated between subscales of the questionnaire and the time spent on the internet. Descriptive statistics were calculated for the categorical and numeric variables [frequency and percentages and mean ± standard deviation, median (min-max)]. A p value of <0.05 was considered statistically significant and all hypothesis tests were evaluated two-sided.
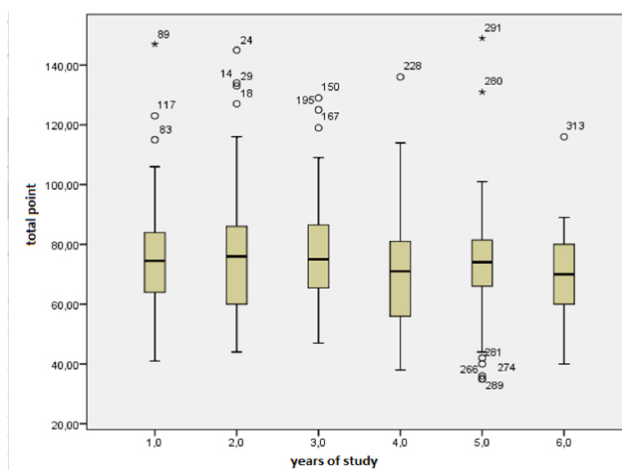
Figure 1: Normal distribution of the total scores of the subjects from different study years.

Since the results did not fulfill the parametric assumptions, they were later analyzed by using nonparametric tests (Mann-Whitney U, Kruskal Wallis). The corrected p value for different study years was set at 0.0033.

RESULTS

All 327 students from each 6 curricular years of Trakya University School of Medicine, including 177 female and 150 male subjects participated in this research. Their ages varied between 18 and 26.

Cronbach alpha (α) reliability scores of the IAS were calculated. The reliability of the first subscale

(withdrawal) consisting of 11 items was found to be 80.3%, the reliability of the second subscale (controlling difficulty) consisted of 10 items was 85.1%, the reliability of the third subscale (disorder in functionality) consisted of 7 items was 90.4% and the reliability of the fourth subscale (social isolation dimensions) consisted of 7 items was 89.6%. Total reliability score was calculated as 93.7%.

The average time spent on the internet was found as 3.9 hours per day. There was a statistically significant and low correlation between the time spent on the internet and the internet addiction subscale withdrawal and total internet addiction scale score (r=0.308 , p<0.001; r=0.303, p<0.001).

The distribution of total IAS scores among grades of participants is demonstrated in Figure 1. A statistically significant difference was found between the groups in terms of withdrawal subscale of the IAS (p=0.010), particularly between the 3rd and 4th year students (p<0.001) (Table 1A). Although the difference between the 1st and 4th year students (p=0.09) was not statistically significant, 1st year students had higher withdrawal scores. No statistically significant difference was found between the groups and the subscales (controlling difficulty, disorder in functionality, social isolation dimensions) also the total IAS scores (p=0.509, 0.306, 0.338, 0.309).

Despite the IAS scores had no statistically significant difference between the male and female students in terms of the Social Isolation Dimensions subscale (p=0.91), the scores regarding the males were higher (Table 1B). Furthermore, there was no statistically significant difference among settlement groups in terms of total IAS scores (Table 1C).

Table 1: Results of IAS and nonparametric tests (Mann-Whitney U, Kruskall Wallis) distributed in years of study (A), gender (B) and settlement (C).

A	Years of Study						
	1	2	3	4	5	6	P-value
Withdrawal Score M±SD Md(Min-Max)	31.18± 8.33 31 (14-55)	29.92±6.43 31(17-44)	31.46±6.14 31(19-48)	26.92±6.29 27(14-39)	28.34±8.36 29(11-46)	28.51±6.76 31(15-51)	0.010*‡
Controlling Difficulty Score M±SD Md(Min-Max)	21.42±6.76 21(12-46)	21.49±7.12 20(11-44)	21.30±6.15 22(10-42)	20.33±7.05 21(10-39)	22.27±6.71 23(10-42)	19.65±5.72 20(10-33)	0.509*
Disorder in Functionality Score M±SD Md(Min-Max)	13.14±4.89 13(7-31)	14.21±6.58 14(7-33)	12.86±4.60 12(7-28)	12.17±5.91 10(7-33)	13.10±5.69 13(7-33)	11.65±3.75 12(7-23)	0.306*
Social Isolation Dimensions Score M±SD Md(Min-Max)	9.96±3.34 9(7-22)	11.83±5.56 10(7-35)	10.64±4.35 10(7-35)	11.27±5.44 10(7-33)	10.59±5.25 9(7-32)	9.89±3.32 9(7-17)	0.338*
Total Score M±SD Md(Min-Max)	75.71±19.08 74.50(41-147)	77.46±21.33 76(44-145)	76.26±17.47 75(47-129)	70.70±19.74 71(38-136)	74.31±22.22 74(35-149)	69.72±16.49 70(40-116)	0.309*

B	Female	Male	P-value
Withdrawal Score M±SD Md(Min-Max)	29.71±6.89 30(11-48)	29.65±7.51 30(14-55)	0.670**
Controlling Difficulty Score M±SD Md(Min-Max)	20.88±6.68 21(10-44)	21.58±6.58 21.50(10-46)	0.460**
Disorder in Functionality Score M±SD Md(Min-Max)	12.62±5.20 12(7-33)	13.44±5.64 13(7-33)	0.267**
Social Isolation Dimensions Score M±SD Md(Min-Max)	10.54±4.79 9(7-35)	11.07±4.64 10(7-35)	0.91**
Total Score M±SD Md(Min-Max)	73.77±19.30 74(35-149)	75.75±19.92 74(39-147)	0.473**

C	House	Private dormitary	Public dormitary	P-value
Withdrawal Score M±SD Md(Min-Max)	29.28±7.24 29(11-55)	30.79±6.81 31(14-52)	29.98±7.29 31(11-44)	0.142*
Controlling Difficulty Score M±SD Md(Min-Max)	20.81±6.52 21(10-46)	21.95±6.29 21(12-37)	21.69±7.43 21.5(10-39)	0.459*
Disorder in Functionality Score M±SD Md(Min-Max)	12.84±5.26 12(7-33)	12.73±5.56 12(7-33)	13.87±5.79 13(7-32)	0.419*
Social Isolation Dimensions Score M±SD Md(Min-Max)	10.43±4.51 9(7-35)	10.82±4.13 10(7-30)	12.01±5.89 10(7-33)	0.114*
Total Score M±SD Md(Min-Max)	73.32±19.56 72(35-149)	76.31±17.57 78(41-127)	77.57±21.79 77.5(35-136)	0.154*

*Kruskal Wallis Analysis of Variance , **: Mann-Whitney U Test, ‡: Statistically Significant M: Mean , SD: Standart Deviation, Md: Median, Min: Minimum, Max: Maximum*

As a result of the research, it was found out that students use the internet mostly for communicational purposes (94.5%) followed by educational purposes (68.9%). The study also revealed common problems and behavioral features associated with internet addiction (Table 2).

Table 2: Behaviors and problems associated with internet addiction.

Variable	Present (number/%)	Absent (number/%)	Total (number/%)
* Physical complaint	269 (82.3)	58 (17.7)	327 (100.00)
Snacking during internet usage	215 (65.7)	112 (34.3)	327 (100.00)
Weight gain	65 (19.9)	262 (80.1)	327 (100.00)
Interview With a Doctor	11 (3.4)	316 (96.6)	327 (100.00)

* Most common physical complaint was dry-eyes(40.1%).

In terms of total IAS score, there was a statistically significant difference between the subjects, who reported complaints such as headache, feeling of stiffness, backache, neck pain, insomnia and the ones who did not (p=0.005, 0.020, 0.004, 0.012, 0.004). These complaints were more common in the subjects with higher total score of IAS.

In terms of total IAS score, there was no statistically significant difference between the subjects, who reported complaints such as dizziness, dry-eyes, wrist pain and stomachache and the ones who did not (p=0.085, 0.375, 0.090, 0.066).

DISCUSSION

Internet addiction and excessive computer usage are gaining importance day by day and it affects mostly young adults which medical students are also a member of. Therefore, this study carries an important role in understanding the recently emerged term, internet addiction.

As shown in Table 1A, 4th year students reported lower internet usage than 1st year students. The reason for this may be that the internet addiction of the new generation is increasing compared to the old generation.

Computer and internet usage are most common in 16-24 age group (7). This research was conducted among subjects between the ages of 18 and 26. Data obtained from Turkish Statistical Institute shows that the subject pool of this study consists of those in the risk group according to previous studies (7).

The factors that cause internet addiction have been the subject of various studies. Previous researches show that the gender factor is an important determinant of internet addiction and male students have a higher tendency for internet addiction during their education compared to their female counterparts (8, 9). In addition, Shao et al's (10) study showed a statistically significant difference in the internet addiction detection rates between male students (16%) and female students (8%). Similarly, in this research, the tendency of male participants to use the internet was found higher than female participants. However, this difference was not statistically significant (p=0.473).

Gün et al. (11) conducted a research on 83 subjects who worked as a secretary at Erciyes University Medical Faculty Hospital, evaluating the effects of computer use on health problems. 77.1% of subjects complained of neck pain. In our research, the rate of neck pain was found to be 33%. Additionally, the subjects, who presented neck pain complaint, had significantly higher total IAS scores (p=0.012).

In the research of S. Aslan and R. Aylaz (1), the most common health problem due to internet use was neck pain (11.3%, p=0.01) in terms of total IAS scores. In our research, the most common complaint of those who stated that they had a physical complaint was dry-eyes. However, no statistically significant difference was found between the subjects who complained of having dry-eyes and the ones who did not (p=0.375). The reason for the high prevalence of dry-eyes might be the constant stimulus exposure to the eyes, rather than internet usage. This may also be related to insomnia.

Subjects stated that they used the internet frequently for educational purposes. Reason for this could be the easier accessibility to education materials on the internet.

The withdrawal score increased with the increase of the internet usage time (r=0.308, p<0.001). Cut-off symptoms are expected in those who use the internet for longer time periods when they cannot reach internet connection.

According to Shao et al. (10), the most important point should be to help people forming a reasonable understanding of internet addiction and changing unhealthy lifestyles. As a result of the obtained data, the dimension of this health problem was evaluated in the Trakya University School of Medicine. The next step should be taken in the light of the recommendation of Shao et al (10).

In conclusion, students of Trakya University School of Medicine, who constitute a part of the young population were found to suffer from several physical effects of internet addiction. It is thought that this may lead to permanent physical pathologies in the future. Considering that internet usage can lead to addiction, it is essential to take measures to control internet usage in order to prevent the health problems that may arise.

Ethics Committee Approval: This study was approved by Scientific Researches Committee of Trakya University School of Medicine.

Informed Consent: Written informed consent was obtained from the participants of this study.

Conflict of Interest: The authors declared no conflict of interest.

Author contributions: Concept: GNV. Design: GNV. Supervision: GNV, VT. Resources: GNV. Materials: GNV. Data collection and/or processing: GNV, VT, VV. Analysis and/or Interpretation: GNV, VT, VV. Literature Search: GNV, VT, VV. Writing Manuscript: VT, VV. Critical Review: GNV, VT, VV.

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