




## THE FACTORS AFFECTING THE PROBLEMATIC INTERNET USAGE AND THE SOCIALIZATION LEVEL AMONG HEARING-IMPAIRED ADOLESCENTS

### İşitme Engelli Adolesanlarda Problemlı İnternet Kullanımı ve Sosyalleşme Düzeylerini Etkileyen Faktörler

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#### ABSTRACT

This descriptive study was conducted to identify the factors affecting problematic internet usage and the socialization level among hearing-impaired adolescents. The study has been done with one hundred twenty six (97 males and 29 females) hearing-impaired students, aged between 14 and 21. The data were collected using Turkish Sign Language, by the researcher who received Sign Language Interpretation Training. 'The Problematic Internet Usage Scale' and 'Socialization Level Scale' were used as assessment instruments. The results showed that level of the problematic internet usage and the socialization of the participants were at a moderate level with mean scores of 83.8±19.8 on the Problematic Internet Usage Scale and 31.9±8.9 on the Socialization Level Scale. As hearing-impaired adolescents are encouraged to use more internet in order to increase their socialization level, risks as; problematic internet use, keeping young people away from society, and social exclusion should be taken into consideration.

**Keywords:** Adolescent, Hearing-impaired, Problematic internet use, Socialization.

#### ÖZ

Bu tanımlayıcı çalışma, işitme engelli adolesanlarda problemlı internet kullanımı ve sosyalleşme düzeylerini etkileyen faktörlerin belirlenmesi amacıyla yapıldı. Çalışma, yaşları 14 ile 21 aralığında olan 126 işitme engelli öğrenci (97 erkek ve 29 kadın) ile yapılmıştır. Veriler, İşaret Dili Tercümanlığı Eğitimi almış araştırmacı tarafından Türk İşaret Dili kullanılarak toplandı. Değerlendirme araçları olarak 'Problemlı İnternet Kullanımı Ölçeği' ve 'Sosyalleşme Düzeyi Ölçeği' kullanıldı. Sonuçlar, katılımcıların Problemlı İnternet Kullanım Ölçeği'nde 83.8±19.8 ve Sosyalleşme Düzeyi Ölçeği'nde 31.9±8.9 puan ortalamaları ile, problemlı internet kullanımının ve sosyalleşme düzeylerinin orta düzeyde olduğunu gösterdi. İşitme engelli adolesanlar sosyalleşme düzeylerini artırmak için daha fazla internet kullanımına yönlendirilirken; problemlı internet kullanımı, gençlerin toplumdaki uzak tutulması ve sosyal dışlanma gibi riskler göz önüne alınmalıdır.

**Anahtar kelimeler:** Adolesan, İşitme engelli, Problemlı internet kullanımı, Sosyalleşme.

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## INTRODUCTION

Approximately 360 million people throughout the world are known to suffer from some sort of hearing impairment (Olusanya, Neuman, & Saunder, 2014). Hearing impairment develops as a result of the partial or complete hearing loss and therefore may cause destructive psychological problems for individuals. Due to both hearing loss and insufficient verbal communication skills, children who suffer from hearing impairment are widely accepted as being in the disadvantaged group in terms of the development of social skills. Given that these individuals are unable to react to the sounds around them, they also suffer from inadequate psychomotor development. As they cannot socially interact like a normal hearing individual, their level of socialization is low (Kizir & Çiftçi-Tekinarslan, 2016). Persons who are deaf or hard of hearing face with serious challenges when it comes to communicating with other individuals, because they rely on sign language, finger alphabet, lip-reading, and/or visual materials. Hence, many prefer to socialize through the internet. Although the internet makes communication easier, its' widespread usage has opened the floodgates for problematic and pathological overuse that may even be described as a new form of addiction (Dufour, Gagnon, Nadeau, Legare, & Laverdiere, 2018; Fajardo, Parra, & Canas, 2010; Karaca & Bayır, 2018; Köten & Erdoğan, 2014).

Even though no specific data exists regarding to internet use by adolescents who are deaf or hard of hearing, it is known that 94% of young people who are at the age of 15 to 24 use the internet in developed countries compared to 67% in developing countries and 30% in under developed countries (International Telecommunication Union (ITU), 2017).

The internet use offers many advantages to adolescents who are deaf or hard of hearing. Even though the proper use of internet provides countless positive effects on socialization, it may also pose risks as well (Guana & Subrahmanyam, 2009). It would be safe to conclude that although internet use contributes to the socialization of adolescent who are deaf or hard of hearing, both overuse and improper use of internet creates the possibility of a phenomenon known as the problematic internet use which may lead to unexpected risky conditions.

The problematic internet use and the associated factors are heavily studied in normal adolescents, but relevant studies are lacking in hearing-impaired adolescents. The constant development in the internet infrastructure and high-paced software development led to a new era where the ways adolescents use internet has become extremely important. It would be imperative to understand the factors associated with problematic internet use and its

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consequent social imprints. This is needed not only for the caregivers, educators, and parents but also relevant government entities to make informed decisions.

This study was conducted to identify the factors affecting problematic internet use and the socialization level among hearing-impaired adolescents.

## **MATERIAL AND METHOD**

### **Design**

This descriptive study was conducted to identify the factors affecting the problematic internet usage and the socialization level among hearing-impaired students at a special education vocational high school in Turkey.

### **Participants**

The participants were selected from a special education center in Central Anatolia Region of Turkey. Out of 133 hearing-impaired students at a special education center in the Central Anatolia Region of Turkey, a total of 126 hearing-impaired adolescents (97 males and 29 females) between the ages of 14 and 21 who met the inclusion criteria during the academic school year of 2016-2017 participated in the study. Data collection was carried out by one of the authors. The data was collected by the researcher who is a fluent speaker of Turkish Sign Language with full credentials. The inclusion criteria were; internet usage for communicative purposes on a regular basis, the use of Turkish Sign Language and willingness to participate in the study. The exclusion criteria included rejection to participation (6 students rejected) and not using Turkish Sign Language (1 student) in the study. According to these criteria, a total of 7 students were excluded from the study.

### **Procedures**

The students were randomly selected and categorized into groups of three using their student IDs. Data was collected in a classroom provided by the school administration. The participants were provided required information before their written and verbal consent were received. The instruments were delivered to the participants and they were given enough time to read these instruments. The researcher explained the scale items to the participants and instructed them to mark the scale items using sign language. It took approximately 30 minutes to complete each instrument.

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## Instruments

The Descriptive Information Form, The Problematic Internet Usage Scale, and Socialization Level Scale were used to collect the data of the study.

*The Descriptive Information Form* was composed of 14 questions about socio-demographic information and the characteristics related to internet use of the students (age, gender, parents' marital status, the educational status of the mother, the educational status of the father, mother's employment status, father's employment status, who the student is living with, home/dormitory location, internet access at home/dormitory, daily internet use, the purpose of internet use, using the internet more than the planned time, thinking that communicating over the internet is easier than making face-to-face communication).

*The Problematic Internet Usage Scale (PIUS)* is an assessment tool for determining problematic internet use among students. Ceyhan et al. developed the scale and conducted its validity and reliability (E. Ceyhan, A. A. Ceyhan, & Gurcan, 2007). It is composed of 33 items grouped under 3 factors (i.e. "negative consequences of the internet", "social benefits/social comfort", and "excessive usage"). The minimum score of the scale is 33, whereas the maximum score is 165. A high score demonstrates that individuals have unhealthy internet usage, and the internet not only has a negative effect on their lives but also causes a predisposition to pathology such as addiction.

The seventh and twelfth items of the scale are rated reversely in a likert-type scale. The internal consistency coefficient ( $\alpha$ ) of the scale is 0.94 and its' test-retest reliability coefficient is calculated as 0.81. Accordingly, the internal consistency coefficients of all three factors were as follows: factor one (negative consequences of the internet) was 0.94, factor 2 (social benefits/social comfort) was 0.85, and factor 3 (excessive usage) was 0.74.

*Socialization Level Scale (SLS)* is an assessment instrument used to measure the socialization level of the students. The scale was applied to 100 students who were aged between 12 and 17, and were studying at schools for the hearing impaired in the cities of Kutahya, Eskisehir, and Afyon. To measure the scale's validity, all nonparametric data were converted into parametric data and then run through varimax conversion. Afterwards, the Principal Components Analysis method was used. Factor analysis for each of the study precursors was performed at 0.40 level (which is well accepted in the literature) and five-factor groups were identified. Cronbach's Alpha Coefficient was found to be 0.845. The scale having 13 items is rated in a five-point scoring. A minimum score of the scale is 13 and the maximum score is 65. A high score indicates a high level of socialization (Berber & Ersoy, 2011).

## Data Analysis

The data analysis were done by using IBM SPSS 22.0 (IBM Corp., Armonk, New York, USA) packaged software. The unit number (n) and percentage (%) were calculated for the categorical variables, whereas the descriptive statistics, minimum and maximum values, mean and standard deviation ( $\bar{x}\pm sd$ ) were calculated for the continuous variables. The Kolmogorov-Smirnov test was used to assess the compatibility of the data with the normal distribution. In normally distributed data, the independent samples t-test for comparison of two groups and One-Way ANOVA test for comparison of more than two groups were used. The posthoc Tukey Test was used to determine the variables causing significance in more than two groups. The results were assessed at a confidence level of 95% and a significance level of  $p \leq 0.05$ .

## Ethical Considerations

Approval from both The Ethics Committee of Erciyes University Social-Human Sciences (2017/02) and The Special Education Vocational High School were obtained. After the study protocol was thoroughly explained using sign language, written and verbal consent was obtained from the participants who were older than 18 years of age. For the minors, parental written consent was obtained after the study protocol was thoroughly explained to them as well.

## RESULT

The average age of the participants was  $17.4 \pm 2.2$  years and 77.0% were male (Table 1).

**Table 1.** The Descriptive Characteristics of The Participants (N=126)

<b>The Descriptive Characteristics</b>	<b>N</b>	<b>%</b>
<b>Age average</b>	17.4±2.2 (14-21)	
<b>Gender</b>		
Female	29	23
Male	97	77
<b>Parents' marital status</b>		
Together	110	87.3
Divorced or separated due to death	16	12.7
<b>The educational status of the mother</b>		
Illiterate	20	15.9
Literate	6	4.7
Primary education	79	62.7
High school	20	15.9
Higher education	1	0.8
<b>The educational status of the father</b>		
Illiterate	12	9.5
Literate	4	3.2
Primary education	76	60.3

High school	29	23.0
Higher Education	5	4.0
<b>Mother's Employment Status</b>		
Employed	40	31.7
Unemployed	86	68.3
<b>Father's Employment Status</b>		
Employed	117	92.9
Unemployed	9	7.1
<b>Who is the student living with?</b>		
Family	53	42.1
Friend (Dormitory)	73	57.9
<b>Home/Dormitory Location</b>		
Rural	18	14.3
Urban	108	85.7
<b>Total</b>	126	100

In Table 2, it is seen that 28.6 % of the participants did not have internet access either in their homes or /dormitory. Daily internet usage among participants who had access to the internet ranged between 24.6 % to 28.6 %. The majority of participants used internet for social platforms. Almost one fifth of the participants always/never used the internet more than the planned time. The majority of the participants thought that communicating over the internet was always easier than making face-to-face communication (42.1%). 71.4% of the students had internet access at home and 24.6% stated that they used the internet for 6 hours and more. 42.1% of the students stated that communicating with others over the internet was easier than face-to-face communication (Table 2).

**Table 2.** The Characteristics Related to Internet Use (N=126)

<b>The characteristics related to internet use</b>	<b>N</b>	<b>%</b>
<b>Internet access at home/dormitory</b>		
Yes	90	71.4
No	36	28.6
<b>Daily internet Use</b>		
15-45min	36	28.6
1-2 hours	31	24.6
3-5 hours	31	24.6
6 hours and over	31	24.6
<b>The purpose of internet use</b>		
Homework	4	3.2
Film/ Music/ Tv	4	3.2
Chat	19	15.1
Game	8	6.3
Facebook/Instagram/Twitter	91	72.2
<b>Using the internet more than the planned time</b>		
Never	26	20.7
Sometimes	43	34.1
Occasionally	25	19.8
Often	4	3.2
Always	28	22.2
<b>Thinking that communicating over the internet is easier than making face-to-face communication</b>		
Never	10	7.9
Sometimes	40	31.7
Occasionally	14	11.1

Often	9	7.2
Always	53	42.1
<b>Total</b>	126	100

The participants' PIUS mean score was 83.8 and their SLS mean score was 31.9 (Table 3).

**Table 3.** Mean Scores of Problematic Internet Usage Scale (PIUS) and Socialization Level Scale (SLS) (N=126)

The scales and their subscales	Mean±Sd	Min-Max
<b>PIUS Subscales</b>		
Excessive usage	15.8±5.2	6-30
Social Benefit	29.0±7.4	11-46
Negative consequences of the internet	38.9±11.9	17-84
<b>PIUS Total Score</b>	83.8±19.8	41-160
<b>SLS Total Score</b>	31.9±8.9	20-57

A statistically significant difference was found between their daily internet use and their PIUS total score, and this difference was caused by those who used the internet for "1 to 2 hours" and "6 hours" ( $p<0.001$ ) (Table 4). A statistically significant difference was found between subjects' excessive use of the internet and their PIUS total score ( $p<0.001$ ). Likewise, PIUS total score of the students, thinking that communicating over the internet was easier than making face-to-face communication, was high. Furthermore, the rate of those thinking that communicating over the internet was easier than making face-to-face communication was higher in male students and there was a significant correlation between them ( $p<0.001$ ). A statistically significant correlation was determined between these students and the SLS total score ( $p\leq 0.001$ ).

**Table 4.** The Problematic Internet Use and Socialization Level Based on The Internet Use Characteristics (N=126)

Characteristics	N	PIUS Mean±SD	Test*	N	SLS Mean±SD	Test*
<b>Internet access at home/dormitory</b>						
Yes	90	88.0±14.9		90	31.9±9.0	$p=0.927$
No	36	76.3±24.6	$p\leq 0.05$	36	31.8±8.7	
<b>Daily internet use</b>						
15-45min	33	69.2±24.6		33	32.5±9.1	
1-2 hours	31	78.9±13.3	$p\leq 0.001$	31	33.7±9.6	$p=0.404$
3-5 hours	31	90.6±11.4		31	30.8±8.6	
6 hours and over	31	97.3±13.6		31	30.3±8.2	
<b>The purpose of internet use</b>						
Homework	4	92.0±46.3		4	30.8±7.7	
Film/ Music/ Tv	4	90.0±17.3		4	34.0±6.9	
Chat	19	77.8±17.7		19	30.6±8.3	$p=0.948$
Game	8	89.6±12.7	$p=0.480$	8	32.0±10.1	
Facebook/ Instagram	91	83.9±19.3		91	32.1±9.2	
<b>Using the internet more then the planned time</b>						
Never	26	70.6±26.8		26	32.7±10.0	
Sometimes	43	80.3±14.8		43	31.8±8.9	

Occasionally	25	87.2±15.5	<i>p</i> ≤0.001	25	28.0±6.0	<i>p</i> =0.089
Often	4	99.0±11.8		4	30.5±7.2	
Always	28	96.0±13.9		28	34.8±9.5	
<b>Thinking that communicating over the internet is easier than making face-to-face communication</b>						
Never	10	56.6±18.1		10	34.5±10.4	
Sometimes	40	81.4±23.2		40	33.4±9.6	
Occasionally	14	81.1±16.9	<i>p</i> ≤0.001	14	36.2±10.2	<i>p</i> =0.026
Often	9	88.7±9.2		9	27.0±3.0	
Always	53	90.5±14.1		53	29.9±7.6	

\* Independent-T Test, One Way Anova and Post-Hoc Tukey Test

## DISCUSSION

People with hearing disabilities use the telephone and internet to communicate thanks to several advancements in computer technologies (Subaşıoğlu, 2000). Most of physically challenged adolescents have stated that they use the internet because they cannot properly engage in social activities in non-digital settings (Raghavendra, Grace, & Newman, 2013). This indicates that internet usage is more of a necessity than a preference for adolescents with disabilities.

It is known that the adolescents with disabilities get in contact with strangers more on the internet as they advance in their schooling, their parents supervise them less, and they spend less time outdoors. For adolescents with disabilities who remain exclusively at home and are kept away from the outside world, the internet becomes one of their main means of spending time. The vast majority of them (84.8%) consider the internet as a great way to spend time at home (Köten & Erdoğan, 2014). More than half of them have also stated that they play games on the internet simply because they cannot participate in outdoor sporting and gaming activities. However, these activities are essential in the development of personal discipline, diligence, competitiveness, cooperation, solidarity, a sense of responsibility alongside the characteristics and values that help them to discover their own identity. In contrast, online gaming is less likely to teach them these skills and values, making it more difficult for them to integrate into social settings, which ultimately leads them to social exclusion. If they become detached from the flow of life, they then are likely to resort to communicate with others online as it is easier (Köten & Erdoğan, 2014; Raghavendra et al., 2013). In this study, the mean scores of each PIUS subscales, the negative consequences of the internet, social benefits, and excessive usage were found to be 29.58±13.33, 20.65±8.71, and 15.93±5.50 respectively. Based on these subscale values, the total mean score of PIUS was found to be 83.8±19.8 (Table 3). Multiple similar studies were previously conducted with different participants to determine PIUS scores. In a study conducted by Altıntaş and Öztabak, on secondary school students, the mean score was 34.94±15.71 for the negative



consequences of the internet subscale,  $23.45 \pm 9.52$  for the social benefit subscale, and  $17.83 \pm 6.19$  for the excessive usage subscale (Altıntaş & Öztabak, 2016). The total mean score of PIUS in this particular study was  $76.22 \pm 28.77$ . In a similar study by Sırakaya and Seferoğlu, the total mean score of PIUS were reported as moderate ( $63.24 \pm 20.18$ ). These studies are in accordance with our findings and safe to conclude that the mean score of problematic internet use was at a moderate level. The difference of the PIUS scores among previous studies and our study is similar due to differences in adolescents' age and educational level as well as many other factors (Sırakaya & Seferoğlu, 2013).

Aktürk and Çiçek, defined internet addiction as excessive internet use (Aktürk & Çiçek, 2017). In this study, there was a positive correlation between the problematic internet usage levels and the duration of internet use. As the participants spent more time using the internet, their PIUS scale and subscale mean scores increased significantly ( $p < 0.001$ ) (Table 4). This finding is supported by previous studies indicating a parallelism between the problematic use of the internet and the amount of time the subject spends using the internet (Eldeleklioğlu & Vural, 2013; Odacı & Kalkan, 2010). Several previous studies reported the correlation between the time of internet use and the internet addiction. As the time of internet usage increases (11 to 100 hours), internet addiction increases as well (Ferraro, Caci, D'amico, & Di Blasi, 2007; Nalwa & Anand, 2003). Problematic internet users spend more time on the internet, specifically spend far too much time using social networking sites (Batıgün & Kılıç, 2011; Boonvisudhi & Kuladee, 2017; Günlü & Ceyhan, 2017). However, the majority of the participants in these studies are normal adolescents. In a study conducted by Köten and Erdoğan, the internet usage among adolescents with disabilities were determined to be: 37.7% for 3-5 hours, 35.3% for 6-8 hours, and 15.2% for 9 hours (Köten & Erdoğan, 2014). It can be concluded that as the adolescents spent more time using the internet, the levels of their problematic internet use increased.

When determining internet addictions, it appears that not only time but also the purpose of internet usage is of great importance. Many positive and negative consequences correlated to internet use are related to the usage aim of the internet (Günüç & Kayri, 2010). The studies have also revealed that online gaming and chatting associated with problematic internet use are the most important two factors (Batıgün & Kılıç, 2011; Bruno et al., 2014; Chou, Huang, Chang, Chen, & Yen, 2017). Günlü and Ceyhan reported that three out of every four adolescents played games on the internet. This study concluded that the problematic internet use and the time of playing games were significantly moderate (Günlü & Ceyhan, 2017). Furthermore, this study showed that while 72.2% of the hearing impaired students used the

internet to access Facebook, Instagram, and Twitter, 15.1% used it simply to chat with others. In this study, no statistical difference was found among the purposes of internet use ( $p < 0.05$ ) (Table 4).

Hearing impaired adolescents view the internet as a communication tool. Adolescents who avoid face-to-face communication and prefer socializing in the virtual environment can more easily make friends through social networking sites (Eraslan-Çapan & Sarıçalı, 2016; Köten & Erdoğan, 2014). The internet is an effective instrument that can be used to counter socialization problems, whereby it is thought that socially excluded groups may even obtain measurable benefits (Chou et al., 2017; Köten & Erdoğan, 2014). The participants in this study expressed that communicating over the internet was easier than making face-to-face communication. This could be interpreted that internet usage supported the socialization of young people with disabilities.

This is a cautionary interpretation, because published results from other studies conclude that using internet to socialize causes problematic internet usage development (Ceyhan, 2011; Dufour et al., 2018). Search for social support may be the leading cause of excessive internet use (Kıran-Esen & Gündoğdu, 2010; Odacı & Çikrikci, 2017). The findings in this study is in general agreement with the current literature. As the amount of time the participants spent on the internet increased, their PIUS mean score increased significantly ( $p < 0.05$ ), whereas no significant increase was found in their level of socialization ( $p > 0.05$ ) (Table 4). Based on these results, the internet usage for the purpose of socialization by young people with disabilities caused wide variety of negative consequences including problematic internet usage.

## Conclusion

This study attempted to explore the factors affecting problematic internet usage and the socialization level of hearing-impaired adolescents. In this study, it has been demonstrated that the problematic internet usage and the socialization of the participants were at a moderate level. Furthermore, as the daily use of the internet increased, so did the level of problematic internet usage. Apparently, the participants who thought it was easier to communicate on the internet had higher PIUS scores than the participants engaging in face-to-face communication. Additionally, 72.2% of the hearing-impaired adolescents students use the internet to access Facebook/Instagram/Twitter, while 15.1% use the internet for chatting purposes. As a result of increased access to internet, the use of these social media platforms for socialization may have important role in the inclusion of these adolescents to the social environment. On the

other hand, the risk of problematic internet usage should also be considered when encouraging hearing-impaired adolescents to socialize using the internet. However, as these individuals are encouraged to use the internet more in order to increase their level of socialization, they may be susceptible to the risk of social exclusion. Furthermore, hearing-impaired adolescents should adapt to the society without depending entirely on the internet. Future research involving problematic internet usage should use wide variety of validated instruments to methodically assess the factors affecting problematic internet usage and the socialization level of hearing-impaired adolescents.

**Note:** This study was oral presented at the 1st International 2nd National Public Health Nursing Congress (24-04-2018, Ankara)

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