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Original Article

The Relationship Between Internet Addiction, Cyberbullying and Parental Attitudes

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ABSTRACT

Aim: This descriptive study was conducted in order to determine the relationship between internet addiction, cyberbullying, cyber victimization and parental attitudes towards them.

Materials and Methods: The sample consisted of 550 students attending the ninth grade who volunteered to participate in this study. Consent from the ethical committee, institute and the parents were obtained for this study. Data were collected using the Student Individual Information form, Young's Internet Addiction Test-short form, Cyberbullying scale, Cyber Victimization scale and Parental Attitudes Scale.

Results: It was determined that 47.1% of the students had a computer or a tablet and 99.5% of them had a smartphone; 44.9% of the students used a computer once a week, and 57.4% used a smartphone to watch videos or films or to follow social media. There was a positive relationship between Young's Internet Addiction test and the Cyberbullying scale while there was a negative relationship between internet addiction and cyber victimization ($p<0.05$).

Conclusion: According to these results, educational programs for adolescents and their parents should be developed related to internet use in adolescents and the risks of addiction, and cyberbullying.

Keywords: Adolescent, cyberbullying, cyber victimization, internet addiction, parental attitudes

Introduction

The internet has provided a new communication medium and is used worldwide (1-3). However, the unprecedented increase in internet use has compounded certain problems caused by the overuse of the internet. The most significant problem, defined as overuse of the internet, is internet addiction (4,5). It has been reported that the overall prevalence of internet addiction ranges from 2.6% to 10.9% in Western and Northern Europe, and the Middle East, respectively (6). Adolescents' internet addiction in other studies were found to be; 1.98% in Norway, 20.8% in Taiwan, 6.44% in China, 10.7% in South Korea, 8.1% in the USA, 1.4% in females in Finland and 1.75% in males, 5.4% in Italy and 1.2% in Turkey (7,8).

Adolescents' (aged between 12 and 18) need for social interaction results in newly established relationships with their peers. Nowadays, this need may be met through social media sites (9). Face-to-face contact of adolescents

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has decreased due to widespread access to digital forms of social interaction through social media thanks to internet technologies (10). As the literature shows, internet addiction may have negative effects on physical, psychosocial and cognitive fields due to overuse of the internet (11,12). A problem caused by widespread internet use is the concept of bullying which is taken into the virtual dimension (13,14). One study on this subject showed that violent online games cause psychosocial problems such as aggressiveness (15). The act of bullying online is defined as "cyberbullying" (13).

Cyberbullying, as a major youth problem worldwide, usually refers to repeated, intentional aggression that can transpire at all hours through digital channels (e.g., smartphones or emails) (14,16-18). Cyberbullying prevalence ranges from 15% to 41% among U.S. adolescents (19). In Cook's (1) study (2021), it was found that 47.7% of parents with children aged 6-10 years, 56.4% of parents with children aged 11-13 years and 59.9% of parents with children aged 14-18 years reported that their children were bullied. In Lee and Shin's (20) study, 34% of the respondent students were involved in cyberbullying, either as bullies (6.3%), as victims (14.6%), or as both bullies and victims (13.1%). Many studies found that, as time on the internet increased, so did cyberbullying and victimization levels. There was a strong, linear relationship among internet addiction, cyberbullying, and victimization (21-23). It was stated that cyberbullying increased in parallel with cyber victimization and that problematic internet use was an important determinant in cyberbullying attitude (24,25). Evidence has revealed that those adolescents exposed to cyberbullying have a higher probability of problems related to aggression and disregarding of rules (26) and they can show similar behaviors (27). It is stated that an adolescent exposed to cyber victimization may show cyberbullying-related behaviors with a sense of anger and revenge and these behaviors can be periodically repeated (28).

However, previous research has primarily focused on the relations between personal factors and cyberbullying perpetration, and the potential relations between family factors and cyberbullying perpetration have received scant attention (14,29). Adolescents who use the internet for long periods of time do not receive enough social support from their families and lack communication within the family. Adolescents who have strong relationships with their family and friends spend less time on the internet. Internet addiction has a negative effect on inter-family communication as well as social life (18). Aktürk and Çiçek (30) (2017) reported that those students who did not have a good relationship with their families tended to use the internet as a means to distance themselves from their families; as a result, it was concluded that the level of internet addiction was higher among such students. It is thought that the satisfaction that adolescents can get from their relationships with their families is very important in terms of problematic internet use.

School health services have an important place in providing preventive health practices and behaviors in schools that have the largest role in terms of reaching children. Bullying and internet addiction are important problems that concern school health professionals (such as physicians, nurses, psychologists, social workers) (21). School nurses have significant responsibilities in providing school-age children with preventive health care and the acquisition of healthy lifestyle behaviors.

The frequency of internet use, the degree of internet addiction and cyberbullying of children and adolescents and the parental attitude regarding this subject should be assessed and recognized.

The present study aimed to determine the relationship between ninth grade students' internet addiction, cyberbullying, cyber victimization and parental attitudes.

The study sought to answer these questions:

- "*Is there any relationship between the internet usage characteristics and internet addiction and cyberbullying and victimization in adolescents?*"

- "*To what extent do internet usage characteristics and internet addiction effect cyberbullying and victimization?*"

- "*Is there any relationship between internet addiction, cyberbullying, cyber victimization and parental attitude?*"

Materials and Methods

Participants

This descriptive study was carried out with high school students in a city in Turkey. The study was conducted in the 2017- 2018 academic year. The study population was 2,571 ninth grade students (male: 1,410, female: 1,161) who lived in the city.

The study sample, which was determined using the known population sampling method, were 334 students for a 95% confidence interval. Four different high school types with in city (science, Anatolian, religious vocational and vocational/technical high schools) were assigned a number, evenly distributed, and selected using a random numbers table in order to reach the desired sample size. The

sample size was obtained from four high schools. This study included 550 students.

Criteria for Inclusion in the Study

Students who used a computer, tablet, or smartphone, who volunteered for the study and whose parents gave informed consent were included in this study. Adolescents use the internet more than other age groups because they are more interested in technology and have not reached psychological maturity yet and constitute a risk group for internet addiction (22,23).

Data Collection Tools

Data were collected using face-to-face interviews with the Student Individual Information form, Young's Internet Addiction Test-short form (YIAT-SF), Cyberbullying scale (CBS), Cyber Victimization scale (CVS), and Parental Attitudes Scale (PAS).

Student Individual Information Form

This form consists of 28 questions prepared by the researcher to determine the socio-demographic characteristics, computer use areas, and social relationships of the participants.

Young's Internet Addiction Test-Short Form

The scale, developed by Kimberly S. Young, was turned into a short form by Pawlikowski et al. (31). This five-point Likert-type scale (1= Never, 5= Very frequently) consists of 12 items. The internal consistency reliability coefficient of the scale was 0.85. Validity and reliability tests found YIAT-SF to be valid and reliable. The scale did not include any reverse-scored items. A high scale score means a higher degree of internet addiction. YIAT Cronbach's alpha coefficient was found to be 0.86 in the present study. It is a scale that can be applied to adolescents and university students.

Cyberbullying Scale

The four-point (Never, Sometimes, Usually, Always) CBS was developed by Arıcak et al. (27) and consists of 24 items. The lowest scale score was 24 and the highest was 96. A high scale score means a higher level of cyberbullying behavior. It is a scale that can be applied to primary school 4th grade and secondary school 5th, 6th, 7th and 8th grade students (10-14 years old). The Cronbach's alpha coefficient of the scale was 0.95 and test-retest reliability coefficient was 0.70. Based on these values, the scale was reliable (27). The Cronbach's alpha coefficient of the CBS was found to be 0.91 in the present study.

Cyber Victimization Scale

The Cronbach's alpha coefficient was 0.89 and test-retest reliability was 0.75 for this scale, which was developed by Arıcak et al. (32). These values proved the scale to be reliable. The scale consists of 24 items which can be answered "yes" or "no". The lowest scale score is 24 and the highest is 48. It is a scale that can be applied to adolescents [primary, secondary and high school students (between the 5th and 12th grades)]. A high scale point means a higher cyber victimization (32). The Cronbach's alpha coefficient of the scale was found to be 0.90 in the present study.

Parental Attitude Scale

PAS was developed by Lamborn, Maunts, Steinberg and Dornbush (1991). The scale consists of three dimensions: acceptation/attention, control/checking and psychological autonomy. Validity and reliability tests were separately conducted on primary school, high school and university students. The test-retest reliability coefficient and the Cronbach's alpha internal consistency for high school students were respectively: 0.82 and 0.70 for acceptation/attention, 0.88 and 0.69 for control/checking; 0.76 and 0.66 for psychological autonomy (33). The Cronbach's alpha for the PAS sub-scales were: 0.65 for psychological autonomy, 0.71 for acceptance/attention and 0.73 for control/checking.

Ethical Principles

Before data collection, a university Non-Invasive Ethical Committee gave ethical approval (2017.10.05) and official permission (49405861-44.E.2025706). The students and parents were informed about the aim of this study and gave informed consent and written permission.

Procedure

Pre-practice

After the necessary permissions were given, ten students who met the inclusion criteria and were outside of the study were selected for pre-administration in order to determine the clarity of the forms and the time required to complete them.

Practice

The surveys were given to ninth grade students studying at four different high schools. Data were collected using the Student Individual Information Form, YIAT-SF, the CS, the CVS and the PAS through a face-to-face method between the dates of September 2017 and March 2018.

Statistical Analysis

Data were analyzed digitally. Descriptive statistics (number, percentage, mean, and standard deviation), the difference between two means tests parametric (Student's t-test, One-Way ANOVA) and non-parametric (Kruskal-Wallis variance analysis, Mann-Whitney U tests) based on homogeneity tests (Kolmogorov-Smirnov and Shapiro-Wilk) and Bonferroni post-hoc tests were used in the data analysis. Correlation coefficients were used in the comparison of the groups. The Cronbach's alpha coefficients of the scales were calculated. In statistical decisions, $p<0.05$ was accepted as the indicator of a significant difference.

Results

Of the participants, 59.1% were female, 40.9% were male, 90.2% were aged between 13 and 15, 48.9% had three or four siblings, 74.9% had a score of 85 or higher in their primary school diploma grades. Of them, 80.5% had a good family relationship, 68.4% did activities with their families, 69.1% had a hobby and 73.8% had good friendships.

Of the participants' mothers, 60.4% were aged between 36 and 45 years, 36.3% were primary school graduates, 76.9% did not work and 14.2% of those who worked were either civil servants or workers. Of the fathers, 65.4% were aged between 36 and 45 years, 29.1% were high school graduates, 36.4% were either civil servants or workers. Of the families, 77.8% had a nuclear structure, 53.3% had income equal to expenses, and 86.2% had social security.

Of the students, 84.7% had computers or tablets at home, 47.1% had their own personal computer or tablet, 99.3% owned a smartphone. Of them, 57.5% went to sleep between 11:00 p.m. and 12:00 a.m., 44.9% used a computer once a week, 44.9% used computers to watch videos or movies, 57.4% used smartphones to follow social media. Of the students, 25.0% experienced exhaustion and 14.6% headaches after long-term use of technology.

The difference between the students' YIAT-SF mean scores, which was based on the student individual information form, was significant ($p<0.001$). The mean score of those who had good familial relationships was 26.21±9.75 while it was 30.14±10.80 for those with mediocre relationships. No significant difference was found regarding the other characteristics ($p>0.05$) (Table I).

Technology usage characteristics showed that those who had computers or tablets at home and personal computers had higher scale scores than those who did not ($p<0.001$). Those who went to sleep between 01:00 and 02:00 a.m. and who used the internet for more than three hours a day had higher scale scores than those who did not ($p=0.001$).

The CS based on the student individual information form showed no significant difference between the

Table I. Students' mean scores on the Young Internet Addiction Test short-form based on technology use characteristics

Characteristics	n	%	Mean	SD	Test
Home computer/tablet					
Owns	466	**84.7**	27.65	9.94	t=4,009
Does not own	84	15.3	22.94	9.74	**p<0.001**
Personal computer					
Owns	259	47.1	28.49	9.69	t=3,460
Does not own	291	**52.9**	25.55	10.17	**p=0.001**
Bedtime					
20.00-22.00	131	23.8	23.00[a,b,c]	(17.00-30.00)	
23.00-24.00	316	**57.5**	25.00[a,d]	(19.00-33.00)	X^2=31,358
01.00-02.00	88	16.0	30.50[b,d]	(23.00-39.00)	**p<0.001**
03.00 or later	15	2.7	29.00[c]	(25.00-48.00)	
Time spent on computer					
Two or three times a week	152	27.4	27.61[a,e]	9.38	
Once a week	247	**44.9**	23.84[a,b,c,d]	8.92	
Once a day, approximately one hour	61	11.1	28.07[b,f]	10.28	F=18,881
Once a day, approximately three hours	39	7.1	31.18[c]	9.95	**p<0.001**
Once a day, more than three hours	51	9.3	35.25[d,e,f]	10.67	

F: One-Way variance analysis statistics, t: t-test statistics, X^2: Kruskal-Wallis statistics
[a,b,c,d,e,f]According to multiple comparison test (post-hoc: Bonferroni) results, different letters define significant difference between scale scores
SD: Standard deviation

characteristics' scale scores except for gender and family relationships (p>0.05). Females had a lower CS score than that of males (z=-2,313, p=0.021). Those who had good family relationships had higher scale mean scores than those with mediocre relationships. This difference was significant (z=-3,105, p=0.002).

The CS based on the parent individual information form showed no significant difference between the characteristics' scale scores except for the mothers' employment status (p>0.05). Those students who had a working mother had higher scale mean scores than those who did not. This difference was significant (z=-2,662, p=0.008) (Table II).

The students' CS mean scores based on their technology use characteristics illustrated that those who had home computers/tablets or personal computers had higher scale scores than those who did not (respectively: p=0.016, p=0.002). Those who went to sleep between 08:00 and 10:00 p.m. had lower scale scores than those who did not (p<0.001). Those who used the computer each day, for more than three hours had higher scale scores than those who did not (p=0.001).

According to the students' CVS mean scores based on the student individual information form, female students had higher mean scores than male students. This difference was significant (p=0.011). Those with between 85 and 100 primary school diploma grades had lower scale scores than the others (p=0.002). Those who had good family relationships had higher scale mean scores than those with mediocre relationships (p<0.001). According to the parents' CVS mean scores based on the parent individual information form, those students whose fathers were aged between 30 and 35, did not work or were retired and were primary school graduates had higher mean scores than the others (p<0.05). Additionally, those students with less income and more expenses had higher scale mean scores than the others (p<0.05) (Table III).

The students' CVS mean scores based on their technology usage characteristics meant that those who had home computers/tablets or personal computers had lower scale scores than those who did not. This difference was significant (p<0.01). Those who went to sleep between 08:00 and 10:00 p.m. and used the computer once a week had higher scale scores than those who did not (p=0.001) (Table IV).

The Parental Attitude sub-scale mean scores of the students based on their technology usage characteristics illustrated that those who spent time on a computer two or three times a week had a higher psychological autonomy sub-scale scores than the others. This difference was significant (p=0.030). Those who did not have personal computers had higher acceptation/attention sub-scale scores than those who did. This difference was significant (p=0.003). Those who used the computer once a day and for more than three hours had lower control/checking sub-

Table II. Students' mean scores on the cyberbullying scale based on technology use characteristics

Characteristics	n	%	Median	25th-75th percentile	Test
Home computer/tablet					
Owns	466	84.7	24.00	(24.00-27.00)	z=-2,401
Does not own	84	15.3	24.00	(24.00-25.75)	**p=0.016**
Personal computer					
Owns	259	47.1	25.00	(24.00-27.00)	z=-3,076
Does not own	291	52.9	24.00	(24.00-26.00)	**p=0.002**
Bedtime					
20.00-22.00	131	23.8	24.00[a,b,c]	(24.00-25.00)	
23.00-24.00	316	57.7	24.50[a]	(24.00-27.00)	X^2=19,859
01.00-02.00	88	16.0	25.00[b]	(24.00-27.75)	**p<0.001**
03.00 or later	15	2.7	26.00[c]	(24.00-37.00)	
Time spent on computer					
Two or three times a week	152	27.6	25.00[a]	(24.00-27.00)	
Once a week	247	44.9	24.00[a,b]	(24.00-26.00)	
Once a day, approximately one hour	61	11.1	24.00	(24.00-27.00)	X^2=17,612
Once a day, approximately three hours	39	7.1	25.00	(24.00-28.00)	**p<0.001**
Once a day, more than three hours	51	9.3	26.00[b]	(24.00-30.00)	

X^2: Kruskal-Wallis statistics, z: Mann-Whitney U test z statistics
[a,b,c]According to multiple comparison test (post-hoc: Bonferroni) results, different letters define significant difference between scale scores

scale scores than the others. This difference was significant (p<0.001).

The students' PAS mean scores meant that the female students with a hobby, primary school diploma grades between 85 and 100 and who spent time on a computer two or three times a week had significantly higher psychological autonomy sub-scale scores than the others (Table V).

The correlation between YIAT-SF and CBS (r=0.335) was a positive weak relationship; and a negative weak relationship (r=-0.345) between CVS. The correlation between the sub-scales' psychological autonomy and control/checking (r=-0.193; r=-0.158) were negative very weak relationships and there was a positive very weak relationship between the acceptation/attention (r=0.231) sub-scale. There was a negative moderate relationship between the CBS and CVS (r=-0.436); a negative very weak relationship between the psychological autonomy and control/checking sub-scales (r=-0.112; r=-0.182); and a positive very weak relationship between the acceptation/attention sub-scale (r=0.159). There was a positive very weak correlation between the CVS and the psychological autonomy and control/checking sub-scales (r=0.148; r=0.157) and a negative very weak linear relationship with the acceptation/attention sub-scale (r=-0.200). There was a positive very weak relationship between the psychological autonomy and the acceptation/attention sub-scales (r=0.153); and a negative weak relationship between the acceptation/attention and the control/checking sub-scales (r=-0.280).

Discussion

Parental attitudes were observed to affect adolescents' virtual behaviors such as being exposed to cyberbullying and thus, cyber victimization. According to the Global Digital Analysis report (2019) (34), there were 4.39 billion internet users in the world. Of them, 59.36 million were located in Turkey. The internet use frequency in Turkey in the 16-74 age group was 48.9% in 2013, 61.2% in 2016 and 72.9% in 2018. Of the 2018 internet users, 80.4% were male and 65.55% were female (35). Almost all students included in this study used the internet (99.5%). Of these students, 84.7% had computers or tablets at home, 47.1% had a personal computer or tablet, 99.3% owned a smartphone and 44.9% used the computer once a week. Parents also provided their children with the opportunity to use smart phones with internet access, which they bought with the intention of being able to reach their children at any time during the day and to ensure their safety, anywhere, and at any time of the day (36). Children experience negative experiences such as cyberbullying and cyber victimization as well as positive achievements such as learning new things, accessing information by using smart phones with internet access (37). Of them, 25% experienced exhaustion and 14.6% experienced headaches after long-term use of technology. Another study found a parallel increase

Table III. Students' mean scores on the cyber victimization based on technology use characteristics

Characteristics	n	%	Median	25th-75th percentile	Test
Home computer/tablet					
Owns Does not own	466 84	84.7 15.3	47.00 48.00	(44.00-48.00) (47.00-48.00)	z=-3,173 **p=0.002**
Personal computer					
Owns Does not own	259 291	47.1 52.9	47.00 48.00	(44.00-48.00) (46.00-48.00)	z=-3,826 **p=0.001**
Bedtime					
20.00-22.00 23.00-24.00 01.00-02.00 03.00 or later	131 316 88 15	23.8 57.5 16.0 2.7	48.00[a] 47.00 46.00[a] 47.00	(46.00-48.00) (44.25-48.00) (43.00-48.00) (42.00-48.00)	X^2=15,787 **p<0.001**
Time spent on computer					
Two or three times a week Once a week Once a day, approximately one hour Once a day, approximately three hours Once a day, more than three hours	152 247 61 39 51	27.6 44.9 11.1 7.1 9.3	47.00 48.00[a] 47.00 46.00 47.00[a]	(44.00-48.00) (46.00-48.00) (45.00-48.00) (42.00-48.00) (43.00-48.00)	X^2=19,428 **p<0.001**

X^2: Kruskal-Wallis statistics, z: Mann-Whitney U test z statistics
[a]According to multiple comparison test (post-hoc: Bonferroni) results, different letters define significant difference between scale scores

Table IV. Students' sub-scale mean scores of the parental attitudes scale based on socio-demographic characteristics

Variables	n	%	Psychological autonomy	Acceptation/Attention	Control/Supervision
			Mean±SD	Median 25th-75th percentile	Median 25th-75th percentile
Sex					
Female Male	325 225	**59.1** 40.9	21.18±4.54 20.27±5.20	16.00 (13.00-18.00) 16.00 (13.00-18.00)	23.00 (21.00-25.00) 21.00 (19.00-23.00)
			t=2,113 **p=0.035**	z=0.287 **p=0.774**	z=-6,338 **p<0.001**
Age					
13-15 16-17	496 54	**90.2** 9.8	20.86±4.84 20.33±4.779	15.00 (13.00-18.00) 17.00 (14.00-19.25)	23.00 (21.00-25.00) 21.50 (18.75-24.00)
			t=0.760 p=0.448	z=-2,138 **p=0.033**	z=-2,204 **p=0.027**
Number of siblings					
1-2 3-4 5 or more	240 269 41	43.6 **48.9** 7.5	20.81±5.01 20.85±4.59 20.56±5.48	15.00 (13.00-18.00) 16.00 (13.00-19.00) 15.00 (13.00-18.00)	23.00 (20.00-24.00) 23.00 (21.00-25.00) 23.00 (20.50-25.00)
			F=0.062 p=0.940	X^2=5,207 p=0.074	X^2=0.864 p=0.649
Primary school diploma grade					
45-69 70-84 85-100	35 103 412	6.4 18.7 **74.9**	18.06a±6.30 20.04±4.38 21.24a±4.71	17.00 (13.00-21.00) 17.00a (14.00-21.00) 15.00a (13.00-18.00)	23.00 (19.00-25.00) 23.00 (21.00-25.00) 23.00 (20.00-24.00)
			F=8.827 **p<0.001**	X^2=15,502 **p=0.002**	X^2=0.612 p=0.736
Relationship with the family					
Good Moderate	443 100	**80.5** 18.2	20.96±4.90 20.09±4.61	15.00 (12.00-17.00) 19.00 (16.00-22.00)	23.00 (21.00-25.00) 21.00 (19.00-23.00)
			t=1.616 p=0.107	z=-7,775 **p<0.001**	z=-4,333 **p<0.001**
Activities with family					
Yes No	376 174	**68.4** 31.6	20.80±5.00 20.83±4.47	14.00 (12.00-17.00) 18.00 (15.00-21.00)	23.00 (21.00-25.00) 22.00 (20.00-25.00)
			t=0.061 p=0.951	z=-8,740 **p<0.001**	z=-1.503 p=0.133
Hobby					
Yes No	380 170	**69.1** 30.9	21.14±4.72 20.08±5.01	15.00 (13.00-18.00) 16.00 (13.00-20.00)	23.00 (21.00-25.00) 23.00 (20.00-25.00)
			t=2,367 **p=0.018**	z=-2,188 **p=0.029**	z=-0.723 p=0.470
Relationship with friends					
Good Moderate Poor	406 133 11	**73.8** 24.2 2.0	21.00(18.00-24.00) 21.00(18.00-24.00) 23.00(19.00-24.00)	15.00[a] (12.75-18.00) 17.00[a] (13.00-20.00) 16.00 (13.00-21.00)	23.00[a] (21.00-25.00) 22.00[a] (20.00-23.00) 21.00 (15.00-23.00)
			X^2=1.158 p=0.560	X^2=10,884 **p=0.004**	X^2=12,054 **p=0.002**

F: One-Way variance analysis, t: Kruskal-Wallis, z: Mann-Whitney U
[a]According to multiple comparison test (post-hoc: Bonferroni) results, different letters define significant difference between scale scores

between physical problems and time and frequency of internet use. Some of the most common problems were fatigue and redness of the eyes, head, neck, back, joint and muscle pains; insomnia and exhaustion (38-40). The present study found a significant relationship between the students' family relationships and internet addiction scores (p<0.001). Those with good family relationships had a lower scale score than those who had mediocre family relationships. One study found that students who did not have a positive or desirable relationship with their family had higher levels of internet addiction (41). Those students whose mothers were housewives had lower levels of internet addiction than those with mothers who were either state employees or workers (p<0.05). It is thought that since the mother is always at home as a housewife, she can control the time and frequency of her child's computer use, thus preventing internet addiction. It has been reported that parental behavioral control, parental psychological control, and parent-child relational qualities are effective in reducing adolescent internet addiction (42,43). The students' YIAT-SF mean scores based on their technology use showed that those who had home computers or tablets (p<0.001), personal computers, who went to sleep late (01:00 to 02:00 a.m.) and who used the computer once a day for more than three hours (p<0.05); had higher mean scores. The study by Yang and Tung (44) found internet addiction to be higher in those who spent longer times on the internet. These findings are parallel to this study's findings. Students who have their own computers and tablets can access the internet more easily whenever they want. This situation allows students who sleep late at night to spend more time on the internet. These are the primary reasons why internet addiction is higher among these students.

No significant difference was found between the students in terms of internet addiction based on their purpose of using a computer or smartphone (p>0.05). However, 44.9% of the students used computers to watch videos or movies and 57.4% used smartphones to follow social media. The most common reason for internet use was found to be social media (9,10,45).

Cyberbullying was more common among male students (p<0.05). In line with the present study, many studies found cyberbullying rates to be higher in male students than females (20,46). This result can be attributed to the fact that men use more technological tools and have less control systems due to their gender perspective. The cyberbullying rates of those with good family relationships were higher than those with mediocre family relationships (p<0.05). This interesting result can be interpreted as some students who have good relations with their parents tend to cyberbully because of the encouragement they get from parental support. Some literature shows the opposite to the results of this study. According to studies by Gómez-Ortiz et al. (47), the rates of cyberbullying in students with good family relationships decreased and Ybarra et al. (48) found the students with weak family relationships had higher cyberbullying rates.

The present study found that those students who had home computers or tablets or personal computers went to sleep at 03:00 a.m. or later, and who used the internet for more than three hours each day had higher cyberbullying rates than others (p<0.05). This study's findings are in line with the literature. The higher the internet usage time is, the higher the cyberbullying rate (49). Those students with home computers or tablets or personal computers were able to commit more cyberbullying than others due to easier access to the internet. The more time which is spent on the internet means higher cyber victimization (36). CVS scores of the female students were higher than those of males (p<0.05). Contrary to this result, another study found

Table V. Correlation between scale mean scores

	Young's Internet Addiction Test-short form	**Cyberbullying scale**	**Cyber Victimization scale**	**Psychological Autonomy Sub-scale**	**Acceptation/ Attention Sub-scale**	**Control/ Checking Sub-scale**
Young's Internet Addiction Test-short form	1.000					
Cyberbullying scale	**0.335***	1.000				
Cyber Victimization scale	**-0.345***	**-0.436***	1.000			
Psychological Autonomy Sub-scale	**-0.193***	**-0.112***	**0.148***	1.000		
Acceptation/Attention Sub-scale	**0.231***	**0.159***	**-0.200***	**0.153***	1.000	
Control/Checking sub-scale	**-0.158***	**-0.182***	**0.157***	-0.069	**-0.280***	1.000

*p<0,05

male students to be exposed to more cyber victimization as they spend more time on the internet (9). There is one study that found that male students experience more cyber victimization than females (46). According to the present study results, those with a primary diploma grade between 85 and 100 experienced cyber victimization on a lower level than others ($p<0.05$). Those students whose diploma grades were lower due to more time spent on the internet experience more cyberbullying. Those students with good family relationships had higher cyber victimization rates ($p<0.001$). In another study, the cyber victimization rates of students with weak family relationships was found to be higher (48). It has been stated that students whose general family functions are increased will reduce their cyberbullying and cyber victimization experiences due to their internet addiction (37,49).

The Parental Attitude sub-scale mean scores of the students based on their technology usage characteristics show that female students with a hobby and a primary diploma grade between 85 and 100 had higher psychological autonomy sub-scale scores than the others. This difference was significant ($p=0.001$). Female students and those with high diploma grades perceived their parents' attitude as democratic and positive, which resulted in them being psychologically more autonomous and successful. Having a hobby leads children to be busy with something they love doing and form their own personal space, making them feel psychologically more autonomous.

Students who had no hobbies and mediocre friendships had higher family acceptation/attention mean scores than others and this difference was significant ($p<0.05$). Families might have improved their acceptation/attention attitudes to prevent their children from feeling socially incompetent.

Of the female students, those aged between 13 and 15 and having good family relationships had higher control/checking sub-scale mean scores than the others. This difference was significant ($p<0.05$). An increase in the parents' control over the younger age groups and females might be due to the parents' controlling tendencies. Of the students, those who had good friendships were controlled/checked more by their parents ($p<0.05$). Parents might have increased their controlling/checking attitudes so as to prevent children from risky situations with friendships. In conclusion, it was revealed that family control and warmth in male students' families were low and as the grade increased, family control and warmth decreased.

The Parental Attitudes sub-scale mean scores of the students based on their technology usage characteristics meant that those who spent time on a computer two or three times a week had higher psychological autonomy sub-scale scores than the others, and those who used the computer more than three hours each day had lower control/checking mean scores. This difference was significant ($p<0.05$). The more frequently a child uses a computer and the internet, the greater the parents' control over the child. On the other hand, as the child uses the computer less frequently, their parents' control over the child decreases, which in turn increases the child's psychological autonomy.

The relationship between the YIAT-SF, CBS, CVS and PAS indicated that cyberbullying scores increased in line with internet addiction scores ($p<0.05$). A high internet addiction score meant a lower cyber victimization score. A high YIAT meant a low psychological autonomy and control/checking score. A high internet addiction score meant a high acceptation/attention score. In one study, it was determined that as the democratic parental attitudes of the students increased, the tendency to violence decreased, and as the protective and authoritarian attitudes increased, the tendency to violence increased (50). In the study by Altıntaş ve Öztabak (51), problematic internet usage levels were lower in those whose parents had democratic parental attitudes.

The higher the cyberbullying score, the lower the cyber victimization score, although one study suggested a significant and positive relationship between cyberbullying and cyber victimization (25). Perceived social support from the family and parental supervision of internet use decreases cyberbullying rates (52,53). In a meta-analysis study, a significant correlation was found between parental monitoring and cyberbullying (29). The present study found that high cyberbullying scores indicated high acceptation/attention scores and low psychological autonomy and control/checking scores. Those students who have less controlling and more accepting parents may tend more towards cyberbullying due to low parental supervision. High cyber victimization scores indicated high psychological autonomy and control/checking scores and low acceptation/attention scores. In one study, there was found to be a relationship between the parents' attitudes and the adolescents' cyberbullying levels (14). Parental control includes family guidance, stopping certain internet-related behaviors and establishing rules for internet use (54). Those students with more controlling parents had less tendencies towards cyberbullying and were less exposed to cyber victimization (53). In another study, it was found that adolescents who had parents with democratic attitudes

experienced less cyberbullying and victimization than those with negligent and or authoritative attitudes (55). Altıntaş and Öztabak (51) found a positive relationship between overuse and problematic internet use of individuals with protective, demanding and authoritarian style families and found a low negative relationship with democratic style families. One study found that controlling parents and inconsistent internet mediation styles were associated with a higher prevalence of cyberbullying (56). High acceptation/attention sub-scale scores meant high psychological autonomy and low control/checking sub-scale scores. Poor parental attitudes led to cyber harm and those parents with suppressive and authoritative attitudes played a role in cyberbullying (47). Adolescents who do not have a healthy and warm relationship with their parents try to compensate for the lack of communication that is present in the family through virtual relationships (52).

These types of virtual relationships cause a greater risk of exposure to cyber victimization. Adolescents try to obtain the attention that is missing in their daily lives through bullying (14). Yiğit et al. (49) found that students with high social support levels did not commit cyberbullying and had lower levels of exposure to such behaviors. Positive emotional support from the family, defined as trust, communication, secure attachment, and a lack of alienation between the parents and their children, has been shown to be a protective factor that lowers the likelihood that an individual will perpetrate cyberbullying (13).

Parental attitude plays a significant role in forming and developing a child's personality. The interaction within the family plays a significant role in the child's personality and emotional development (57). The interaction between the parents and their children allows for the safe and efficient use of the internet and reduces negative risks (58). Parents must provide the emotional warmth that can support an adolescent's disclosure of online activity (13). Parenting roles and guidance are important in controlling a child's internet usage, and this can be supported by internet literacy education at home and at school (59).

As adolescents' habits such as internet addiction, cyberbullying and victimization might continue and affect their lives in the future, (9,24) families should seek professional help on this subject. The public health prevention model provides a framework to organize school nurses' interventions in order to prevent, reduce, and manage incidents of cyberbullying perpetrated via social media. This framework consists of three levels (primary, secondary, and tertiary) but best practice states that interventions on the primary and secondary levels are the most effective in reducing rates of cyberbullying (60). School nurses have the opportunity to help address this problem. To do so, school nurses need to be well versed in recognizing social media, understanding the terminology, and using common social media apps (61).

Study Limitations

The limitations of the present study should be taken into consideration in the interpretation and generalization of the findings obtained within the content of this study. It is limited to the information obtained from the sample group and the data collection tools used.

Conclusion

Consequently, risky internet usage and internet addiction are high among students. Adolescents' internet usage and increases in their internet addiction levels, their experiences of cyberbullying and victimization and parental attitudes regarding these behaviors are presented through the findings of this study.

School health nurses should determine high-risk groups for internet addiction, cyberbullying and cyber victimization and develop intervention programs for those students who are at high risk, for their families and for their teachers. Training which emphasizes parental roles should be developed regarding the issues of cyberbullying and cyber victimization. Teachers and administrators should be informed about the importance of students' friendships, socio-cultural activities and hobbies in preventing problems such as internet addiction and cyberbullying; and they should work cooperatively to encourage students to socialize more. Studies should be carried out in schools encouraging school administration, teachers, counselors, psychologists, doctors and nurses to take a more active role in decreasing rates of internet addiction and cyberbullying.

Ethics

Ethics Committee Approval: Ethics committee approval was received for this study from the Nevşehir Hacı Bektaş Veli University (date: 27.10.2017, approval no: 2017.10.05).

Informed Consent: Informed written consent was obtained from the mothers participating in the study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: D.E., Design: D.E., Supervision: D.E., N.G.B., Resources: K.A.N., Materials: K.A.N., Data Collection and/or

Processing: K.A.N., Analysis and/or Interpretation: K.A.N., D.E., Literature Search: K.A.N., D.E., Writing: D.E., Critical Review: D.E., N.G.B.

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