Research Article / Araştırma Makalesi

The Relationship of Cyber Bullying and Victimization with Anxiety and Depression Risk in High School Students

Lise Öğrencilerinde Siber Zorbalık, Siber Mağduriyet ve Bunların Anksiyete ve Depresyon Riskiyle İlişkisi

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Abstract: In this research, it was intended to find out the frequency of cyber bullying and cyber victimization experienced by students who are attending different schools in a city center and to investigate the relationship between these situations and anxiety and risk of depression. The research population consisted of 460 students studying at Anatolian High School, Private High School, and Imam Hatip High School. This cross-sectional, analytical study included 9th, 10th, 11th and 12th grade voluntary students. Data collected via questionnaire consisted of three parts: socio-demographic information form, the cyber bullying scale (CBS) and the hospital anxiety and depression scale (HADS). The daily internet usage time of the participants were found to be 4.07±3.77 hours. Fifty-eight point seven percent (n=270) of the students were victims while 24.5% (n=112) of them were both bully and victims. The cyber victimization score of male students was found to be 24.1±9.6. The mean anxiety and depression scores of the students were 9.6 ± 4.3 and 7.2 ±3.9 respectively, and difference was significant between cyber victims and those who are neither bully nor victims (p<0.001). Anxiety and depression risk were positively correlated to cyber victimization score. The results of this study reveal that cyber bullying and victimization in young people are quite high. The relationship between cyber bullying, cyber victimization and anxiety and depression poses a significant threat for adolescents.
Keywords: Cyber victimization, cyber bullying, depression, anxiety, adolescent.

Özet: Bu araştırmada, bir şehir merkezinde farklı okullara devam eden öğrencilerin yaşadıkları siber zorbalık ve siber mağduriyet durumlarının sıklığını tespit etmek ve bu durumların kaygı ve depresyon riski ile ilişkisini incelemek amaçlanmıştır. Araştırma evrenini Anadolu Lisesi, Özel Lise ve İmam Hatip Lisesi'nde öğrenim gören 460 öğrenci oluşturmaktadır. Bu kesitsel, analitik çalışmaya 9., 10., 11. ve 12. sınıftaki gönüllü öğrenciler katılmıştır. Veriler sosyo-demografik bilgi formu, siber zorbalık ölçeği (CBS) ve hastane kaygı ve depresyon ölçeği (HADS) olmak üzere üç bölümden oluşan anket aracılığıyla toplandı. Katılımcıların günlük internet kullanım süresi 4,07±3,77 saat olarak bulunmuştur. Öğrencilerin %58,7'si (n=270) mağdur iken, %24,5'i (n=112) hem zorba hem de mağdurdur. Erkek öğrencilerin siber mağduriyet puanı 24,1±9,6 olarak bulunmuştur. Öğrencilerin ortalama anksiyete ve depresyon puanları sırasıyla 9,6 ± 4,3 ve 7,2 ± 3,9'dur ve siber mağdurlar ile ne zorba ne de mağdur olmayanlar arasındaki fark anlamlıdır (p<0,001). Anksiyete ve depresyon riski ile siber mağduriyet puanı arasında pozitif korelasyon bulunmuştur. Bu çalışmanın sonuçları, gençlerde siber zorbalığın ve mağduriyetin oldukça yüksek olduğunu ortaya koymaktadır. Siber zorbalık ve siber mağduriyet ile anksiyete ve depresyon arasındaki ilişki ergenler için önemli bir tehdit oluşturmaktadır.
Anahtar Kelimeler: Siber mağduriyet, siber zorbalık, depresyon, kaygı, ergen.

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1. Introduction

Internet was accessible by only computers earlier, however we can connect to the internet by portable computers, tablets, and smart mobile phones. Social activities like doing homework, making friends, playing video games, watching movies, reading news, shopping, and listening to music are now conducted online, often through social networks (1-3). Consequently, several concepts have emerged from this digital life, such as "cyberbullying" and "cyber victimization" (1,3,4).

Cyberbullying is defined as "willful and repeated harm inflicted through electronic text" (5). In other words, it involves one or more people intentionally and consistently harming a victim using technologies like the internet or mobile phones (6). Forms of cyberbullying include lying about a person online, slander, sending threatening messages, spreading photos and secrets without consent, creating fake images, mocking someone's appearance, insulting, humiliating, making the individual feel worthless, publicly sharing personal information, or calling from a private number to disturb (2,5,7,8).

Although cyber victimization is not as clearly defined as cyberbullying, it is known as "exposure to cyberbullying." Studies have reported varying prevalence rates: 4% in 2007 and 6.1% in 2013 among secondary school students (2,9), 10.7% in Florida, 8.3% in Maryland (3,5), and 24.1% among Turkish secondary school students (10).

The primary reason for cyberbullying is the ease with which bullies can conceal their identities (11). The lack of privacy in virtual environments and the easy accessibility of potential victims also contribute the prevalence of cyber violence (5,7,8). The consequences cyberviolence of cyberbullying include anxiety, depression, frustration, irritability, isolation, low self-esteem, and high depression and anxiety scores (5). Additionally, both bullies and victims often face higher rates of disciplinary punishment, smoking, alcohol use, and psychiatric treatment (10).

Cyber victimization rates vary as 11% among secondary school students, 13.6% among adolescents, 39.6% among primary school students, and 30.6% among university students (3,9,10,12). Factors contributing the victimization include messages sent only to the victim, lack of intervention, and lack of control (5). Victims often are unaware of the laws protecting them and may not realize that they are experiencing constitutes a crime. The use of hidden identities and fake accounts complicates the fight against cyber bullying.

Cyberbullying has severe effects because it often occurs in the victim's safest place, such as their home or bedroom (8). Common consequences include anger (47%), worry (45%), and the desire to quit school (38%) (12). Many studies which explored the relationship between cyberbullying and depression, reporting high rates of depression among both bullies (31.6%) and victims (35.5%). A significant correlation has also been found between cyberbullying and increased levels of anxiety and depression (13,14).

This study aims to investigate the prevalence of cyberbullying and cyber victimization, and their relationship with anxiety and depression, among high-school students from three different types of high-school in a city center.

2. Materials and Methods

Design

This cross-sectional and analytical study was conducted in Konya city center between February 1 and 28 February 2018. Ethics committee approval was obtained from Necmettin Erbakan University, before the study (Issue: 2018/1197 Date: 09.02.2018). The research population consisted of 9th, 10th, 11th and 12th grade students attending three different types of educational institutions: Anatolian high school, private high school and Imam Hatip high school.

Written permission for this study was granted by the Konya Provincial Directorate of National Education. The goal was to reach at

least 377 students with a 5% margin of error and a 95 % confidence interval. Ultimately, 460 students participated in the study, and all were included in the analysis.

The purpose of the study was explained to the students in 2 randomly selected branches from each level the students and by the researcher were asked to fill out the questionnaires. The study was conducted during class hours as permitted by the school administration.

Instruments

A three-step questionnaire consisting of socio-demographic information form, the cyberbullying scale (CBS) and the hospital anxiety and depression scale (HADS) was used.

The socio-demographic information form

Twenty-three descriptive questions such as age, class, and gender, number of siblings, family structure and income level, parental education level, were asked in addition to questions that could be related to cyberbullying and cyber victimization. In addition, information regarding ownership of a mobile phone, tablet, computer, and internet connection, usage of someone else's device, family control over internet use, daily internet usage, the purpose of internet use, and the number of messages received daily was collected. All questions were designed by the researchers based on a literature review (1,3,4,5,6,7,8,10,11,13).

The cyberbullying scale (CBS)

The scale was developed by Stewart et al. in 2014 to measure cyberbullying behavior. The scale (15) was translated into Turkish by Küçük et al., and its validity was tested. Furthermore, a reliability study was conducted (16). This Turkish-adapted form was utilized in this study. The total internal consistency coefficient of the cyberbullying scale was found to be crα = 0.87. In this 16-item scale, the first item aims to identify victims, and the second item aims to identify cyber bullies. The last 14 items measure participants' exposure to cyberbullying. It employs a 5-point Likert scale (1=never to 5=every time), with minimum and maximum scores of 14 and 70 points, respectively. Cyber victimization increases as the score rises.

It was aimed to classify the participants into four groups: cyberbullies, cyber victims, both cyberbullies and victims, and neither bully nor victims. However, only one participant identified as a cyberbully, resulting in three groups: cyber victims, cyberbullies & victims, and neither bullies nor a victims.

The hospital anxiety and depression scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) was developed generation was developed by Zigmond and Snaith in 1983 and was validated and found to be robust in Turkish by Aydemir et al. in 1997 (17,18). A study conducted in 2014 showed that the Turkish version is a good, valid and reliable scale for adolescents (19). In this 14 items scale seven items (1, 3, 5, 7, 9, 11, 13) measure the level of anxiety and each item is scored as 3, 2, 1, 0. The remaining seven items (2, 4, 6, 8, 10, 12, 14) assess the level of depression and each item is scored as 0, 1, 2, 3. The scores for both subscales have a minimum of 0 and a maximum of 21 points. The cut-off score for depression is 7, and for anxiety, it is 10 for Turkish individuals. The Cronbach's Alpha for HADS is 0.81.

Statistical Analyses

All statistical analysis was performed using SPSS v.20.0 Statistics software version (IBM Corp., Armonk, NY, USA). Descriptive statistics of continuous variables were expressed as means and standard deviation while descriptive statistics of categorical data were reported in frequencies and percentages. The chi-square test was used to compare categorical data. The suitability of numerical data for normal distribution was examined with the Kolmogorov-Smirnov test. Mann-Whitney U test, Kruskal-Wallis test and Post-Hoc Tamhane's T2 test were used to investigate the association between the variables in the analysis of the research data. Statistical significance was accepted at a p value of <0.05. Spearman's correlation analysis was used to determine the relationship between all parameters. For the

correlation coefficient, denoted by (r), 0-0.24 is regarded as weak, 0.25-0.49 as moderate, 0.50-0.74 as strong, and 0.75-1.00 as very strong correlation.

3. Results

According to the survey, 58.7% (n=270) of the participants were victims, 24.5% (n=112) were both bullies and victims, and 16.7% (n=77) were neither of them. Only one participant who stated that he is a cyberbully was excluded from the analysis. No statistically significant relationship was found between age groups and cyber victims, both bullies and victims, and neither groups(p=0.372).

The total internal consistency coefficient (Cronbach's α) was 0.704 for this study. All students who participated voluntarily during the interview process were included in thestudy. More than half of the students (50.4%, n=232) were from Anatolian High School, 25.4% (n=117) were from Imam Hatip High School, and 24.2% (n=111) were from a private high school. Fifty six point one percent (n=258) of the participants were female and 50.8% (n=234) were in the 16-17 age group. The ages of the participants were grouped into three categories: 14–15 years old; 16–17 years old; 18–19 years old.

Being both a bully and victim was found to be statistically significant among male students (p<0.000). The rate of victimization was 63.3% (n=171) among female students and 36.7% (n=99) among male students. Anatolian High School students were found to be more victimized (p<0.000). There was no significant difference between private high schools and Imam Hatip High Schools (p=0.468).

There was no significant difference between the groups (p=0.663). Table 1 lists the socio-demographic characteristics of the participants, victimization and bullying situations, mean scores of cyber victimization, and the average scores of the anxiety and depression risks.

The use of social networks was the most prevalent reason 44.3% (n=204) to connect to the internet among the students who participated in the study. This was followed by studying online at 23.7% (n=109) and using internet for entertainment purposes at 12.8% (n=59). Social communication networks 18.5% (n=85) and text messages (SMS) were reported as the most common sources of the victimization. The methods victims and participants are bullied are shown in Table 2.

The mean internet usage of students was 4.07±3.77 hours and the mean time spent on computer without using internet was 0.62±1.54 hours daily.

The participants reported that they were often victimized by another child 4.3% (n=20) in the form of hearing rude words in the online environment. The frequency of asking for help from an adult regarding negative experiences in online environments was found to be very low with a percentage of 0.4% (n=2).

The mean anxiety score of the students was 9.6±4.3 points. A significant difference was reported between cyber victims and those who were neither bullies nor victims (p<0.000). This difference was also found between bullies and non-victims. Fifty-three percent (n=143) of the students who were cyber victims exhibited an increased risk of anxiety. Risk of anxiety also increases in the 58.4% (n=66) the participants who were both bullies and victims. Additionally, 28.6% point six (n=22) of the participants who were neither bullies nor victims were at an increased risk of anxiety.

The mean depression score of the students was 7.2±3.9 points. A significant difference was found between the cyber victims and those who were neither bullies nor victims (p <0,001). Fifty four point four percent (n=147) of the students who were cyber victims had an increased risk of depression. Sixty-nine percent (n=78) of both bullies and victims were at an increased risk of depression. Thirty-three point eight (n=26) of the neither bullies nor victims are at an increased risk of depression. Table 3 shows the situations of the victims, bullies and victims, and those who were neither, as well as a comparison of the possible risk scores for cyber victimization, anxiety, and depression.

There was a positive correlation between cyber victimization scores and the duration of internet usage, anxiety and depression scores. The cyber victimization score was also negatively correlated with age. A positive correlation was found between depression and anxiety scores, as well as between age and depression scores (Table 4).

Table 1. Socio-demographic characteristics of participants, their victimization and bullying status, mean cyber victimization scores, means anxiety risk scores and mean depression risk scores

PARAMETERS		Total		Cyber Victims		Cyber bully & Victims		Neither bully nor victims			Cyber victimization score		Anxiety risk scores		Depression risk scores	
		n	%	n	%	n	%	n	%	p		p*		p*		p*
Age**	14-15	148	32,2	91	33,7	36	31,9	21	27,3		23±8,5		9,5±4,4		7,1±3,3	
	16-17	234	50,8	138	51,1	52	46	44	57,1	0,372	22,7±11,2	0,254	9,4±4,3	0,22	7±4,3	0,016
	18-19	78	17,0	41	15,2	25	22,1	12	15,6		21,2±7,6		10,2±3,8	2	8,2±3,4	
Gender*	Female	258	56,1	171	63,3	33	29,2	54	70,1	0,000	21,4±9,8	0,000	10±4,5	0,01	7±3,8	0,119
	Male	202	43,9	99	36,7	80	70,8	23	29,9		24,1±9,6		9±3,9	9	7,6±3,9	
Type of high school**	Anatolian High school	232	50,4	156	57,8	51	45,5	24	31,2		22,9±8,4		9,9±4,4		7,6±4,1	
										0,000		0,000		0,33		0,186
	İmam hatip High school	117	25,4	57	21,1	29	25,9	31	40,3		19,7±7,9		9,1±4,4	6	7,1±3,6	
	Private High school	111	24,2	57	21,1	32	28,6	22	28,6		24,9±13,3		9,4±3,7		6,7±3,6	
Number of siblings [a]*	1-3	199	43,3	194	71,9	83	73,5	52	67,5	0,663	22,7±10,2	0,694	9,4±4,2	0,42	7,2±3,8	0,782
	4 or more	261	56,7	76	28,1	30	26,5	25	32,5		22,2±8,8		9,8±4,4	2	7,4±4,1	
Mother's education level *	Secondary school or below	225	48,9	128	47,4	59	52,7	38	49,4	0,643	22,3±8,8	0,832	9,6±4,1	0,72	7,4±4,1	0,542
														4		
	High school and above	235	51,1	142	52,6	53	47,3	39	50,6		22,8±10,7		9,5±4,4		7±3,7	
Father's education level *	Secondary school or below	134	29,1	80	29,6	34	30,1	20	26,0	0,797	22,5±9	0,718	9,4±3,9	0,93	7,6±4,1	0,333
														3		
	High school and above	326	70,9	190	70,4	79	69,9	57	74,0		22,6±10,2		9,6±4,4		7,1±3,8	
Income level*	Well	313	68,1	193	71,5	77	68,1	43	55,8	0,034	23,1±10,5	0,966	9,6±4,3	0,97	7,6±3,9	0,248
	Not well	147	31,9	77	28,5	36	31,9	34	44,2		21,3±8,1		9,4±4,2	6	6,6±3,8	
Family structure*	Married parents	429	93,3	254	94,1	102	90,3	72	93,5	0,403	22,5±9,7		9,5±4,3		7,1±3,8	
	Divorced parents	31	6,7	16	5,9	11	9,7	5	6,5		23,9±11,4	0,632	9,6±4,4	0,95	8,6±4,6	0,084
														9		
Owning a personal computer at home*	Yes	372	80,9	223	82,6	87	77	62	80,5	0,442	22,2±8,7	0,473	9,4±4,2	0,09	6,9±3,8	0,001
	No	88	19,1	47	17,4	26	23,0	15	19,5		24,1±13,7		10,3±4,5	5	8,6±4,1	
Owning a personal computer *	Yes	128	27,8	73	27,0	41	36,3	14	18,2	0,022	24,5±10,2	0,012	9,6±4,1	0,78	7,4±4	0,835
	No	332	72,2	197	73,0	72	63,7	63	81,8		21,8±9,6		9,5±4,3	9	7,2±3,8	
Owning a cell phone*	Yes	422	91,7	255	94,4	99	87,6	68	88,3	0,042	22,3±8,6	0,883	9,6±4,3	0,71	7,2±3,9	0,263
	No	38	8,3	15	5,6	14	12,4	9	11,7		25,6±18,6		9,3±4,2	8	7,9±4,1	
Owning a personal tablet computer*	Yes	174	37,8	104	38,5	47	41,6	23	29,9	0,245	22,4±8,6	0,739	9,9±4,4	0,33	7,2±3,6	0,961
	No	286	62,2	166	61,5	66	58,4	54	70,1		2,6±10,5		9,4±4,2	6	7,2±4	
Connection to Internet*	Yes	348	75,7	210	77,8	81	71,7	57	74,0	0,419	22,2±8,6	0,609	9,5±4,1	0,52	7,2±3,7	0,905
	No	112	24,3	60	22,2	32	28,3	20	26,0		23,6±12,8		9,8±4,6	5	7,4±4,3	
Internet Control*	Yes	204	44,3	133	49,3	49	43,4	22	28,6	0,005	23,5±11,4	0,120	9,7±4,1	0,39	7,3±3,8	0,696
	No	256	55,7	137	50,7	64	56,6	55	71,4		21,9±8,3		9,4±4,4	1	7,2±4	
Daily internet usage*	Less than 3 hours	196	42,6	103	52,6	49	25,0	44	22,4	0,012	21,2±10,7	0,000	9±4	0,02	6,8±3,9	0,027
	3 hours or more	264	57,4	167	63,3	64	24,2	33	12,5		23,6±9		10±4,4	2	7,6±3,8	
TOTAL				270	58,7	112	24,5	77	16,7		22,6 ±9,8		9,6±4,3		7,2 ±3,9	

[a]Including the participant. *Mann Whitney-U test is used. ** Kruskal Wallis test is used. If there is a difference between groups non-parametric Post-Hoc (Tamhane's T2) test is used. *** Cyberbullies are excluded because only one participant stated that he is a cyberbully.

Table 2. Type of occurrence of victimization and cyber bullying

	Type of Victimization				**Type of Cyber bullying**			
	Yes		**No**		**Yes**		**No**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
E-mails	12	2,6	448	97,4	9	2,0	451	98,0
Written messages (SMS)	47	10,2	413	89,8	22	4,8	438	95,2
Multimedia messages (MMS)	18	3,9	442	96,1	16	3,5	444	96,5
Instant messaging	31	6,7	429	93,3	29	6,3	431	93,7
Humiliating webpage / web form which is developed for you	8	1,7	452	98,3	8	1,7	452	98,3
Private videos	24	5,2	436	94,8	21	4,6	439	95,4
Social networks	85	18,5	375	81,5	42	9,1	418	90,9
Chatting using social networks	76	16,5	384	83,5	37	8,0	423	92,0
During the game in virtual environments	64	13,9	396	86,1	47	10,2	413	89,8

Table 3. Comparison of cyber victimization score, anxiety and depression risk scores for victims, both cyber bully and victim and neither bully nor victims

	Cyber victim (a) Mean±SD	Cyber bully &victim (b) Mean±SD	Neither bully nor victims (c) Mean±SD	p
Anxiety risk scores	9,9±4,4	10,3±3,8	7,4±3,7	**<0,001**[ac, bc]
Depression risk scores	7,3±3,8	8,4±3,9	5,5±3,5	**0,022**[ab] **0,001**[ac]
Cyber victimization scores	22,6±8,9	28,5±11,1	14,1±0,5	**<0,001**[ab, bc, ac]

[ac] *Cyber victim and neither bully nor victims,* [bc] *cyber bully & victims and neither bully nor victims,* [ab] *Cyber victim and cyber bully &victim,* [ac] *Cyber victim and neither bully nor victims*

Table 4. Correlations between cyber victimization scores, duration of internet usage, anxiety risk scores, depression risk scores and age

		1	2	3	4	5
1. Cyber victimization scores	r	1				
	p					
2. Internet usage time	r	0,147**	1			
	p	0,002				
3. Anxiety risk scores	r	0,263**	0,068	1		
	p	0,000	0,148			
4. Depression risk scores	r	0,249**	0,094*	0,561**	1	
	p	0,000	0,045	0,000		
5.Age	r	-0,026	0,117*	0,091	0,131**	1
	p	0,580	0,012	0,052	0,005	

** The significance level is 0,05. ** The significance level is 0,01.*

4. Discussion

In this study, the levels of cyber victimization and bullying among the most affected age group were investigated. More than a half of the participants were identified as cyber victims, and about a quarter were both bullies and victims. There is no research investigating the relationship between cyber victimization and bullying with anxiety and depression in Turkey. We observed that significant since a similar research has not been conducted in a city center so far. Also, this study includes a broad participation and offers guidance on the causes of these emerging problems among young people.

While the prevalence of cyber bullying was 30.6% among university students, the frequency of cyber victimization was 53.6%, 23%, 27% and 13.6% in various studies (3,4,7,12,13). Kowalski reported cyber bullying rates of 4% and 6.1% in 2007 and 2013, respectively (2,9). Although Patchin found the prevalence of bullying as 10.7% among secondary school students, Çimen reported that almost half of the participants were victims, a, with a quarter identified as cyberbullies and one-fifth as both (5,10). This study presents similar findings, indicating that cyberbullying and cyber victimization are quite common among young people.

Consistent with previous studies, there was no significant difference between age groups with cyber bullying and cyber victimization (20,21). All age groups have internet access, which may contribute to this trend. While males are more likely to be cyberbullies and females are more frequently cyber victims in university settings, the opposite trend is observed among high school students (6,12,20). Some studies, however, found no gender difference in victimization (21). Similarly, this study showed that male students had higher frequency of being cyber bullies and cyber victims while females suffered more from cyber victimization. In line with these results, Yaman found that cyberbullying is more common among males but found no significant difference in terms of victimization (1). According to the mentioned studies, it can be inferred that gender may not be a decisive factor in cyberbullying or victimization. In virtual environments, people can hide their identity or gender, potentially mitigating gender-related disadvantages. For example, females may harm people that they cannot physically afford in the virtual environment; males can stay away from criticism or blames.

While some studies reported school differences about cyberbullying some found no difference between schools (6,20,21). In this study, no significant differences were found between Imam Hatip and private high schools; however, students from Anatolian High Schools experienced more cyber victimization. Anatolian High School students may be subject to more cyber victimization due to their heavy course load. Similarly, Polat did not find a significant difference between the cyber victimization and father education level (21). The virtual environment may prevent parents from serving as effective role models, contributing to this issue. Previous studies from Turkey found no relationship between socioeconomic status and cyberbullying or victimization (1,20,21). In the study conducted by Koçak et al., a significant relationship was found with low socioeconomic status (22).

However, in this study, it was observed that students with low incomes are more likely to be both bullies and victims, or solely victims. This result may stem from the fact that high-income students tend to be more technically proficient, as they are introduced technological devices at an earlier age.

It was determined that students who have their own mobile phone and computer experience higher levels of both cyber victimization and cyberbullying. This result can be attributed to the fact that the personal mobile phones are generally unsupervised, the user may be more likely to engage in cyber bullying as no one else can see the screen, bullies can conceal their identity easily; and internet usage is not controlled properly. It was also found that the participants whose internet access is not controlled are less likely to be either bullies or victims. This may be due to the limited time

they spend online, reducing the need for parental supervision.

Çimen found that both cyberbullies, and victims spend more than four hours a day on the internet, while Yaman reported that the frequency of bullying is higher among students with longer internet usage (1,10). On the other hand, there is a significant difference between high school students in terms of cyberbullying scale scores in favor of individuals who have internet access for five hours or more per day (21,22). The participants stated that their first purpose of using internet was social networks. In parallel with this result, the most common purposes of using internet were detected as communication, playing games, doing homework, joining social networking sites (11,12,20,21). The social networks are places where cyberbullies can easily find new victims, so the young people are at risk.

The participants stated that they mostly use mobile phones to connect to the internet. Also, they access the internet from home at most. Therefore, cyberbullying can even enter their homes, and it can reinforce the negative consequences. In fact, since most of the students connect to the internet from home, simple preventive measures can be taken easily. Raising awareness among families about safe internet usage and ensuring parental control over internet access are among the recommended measures.

It has been reported that most bullying occurs through instant messaging, being banned from chat rooms, and insults within chat rooms (9,20). In this study, the students were victimized mostly by rude words in the social networks. Bullying is mostly experienced in chat rooms in the form of hearing rude words because real identities are typically concealed. This anonymity allows people to engage in cyberbullying more easily, knowing they can leave the chat room at any time and avoid facing any physical reaction from the victim.

In this study, it was observed that students who experiences cyberbullying had higher anxiety and depression risk scores. Similarly, higher anxiety and depression risk scores were found in students who were both bullies and victims. In line with a previously reported study, Çimen found that the frequency of psychiatric treatment was higher among the students who were both cyberbullies and victims, or solely victims (10). Kowalski et. al noted that 44.81% of cyberbullies and victims showed anxiety, while 42.3% exhibited symptoms of depression. In addition, the levels of anxiety and depression were higher among cyberbullying women (2,23).

Study Limitations

There are certain limitations to this study. Although an anonymous questionnaire was used, participants may have been reluctant to admit being cyberbullies, especially if they feared judgment from their peers nearby. Some participants may have hidden their victimization because of shame. The reported prevalence of cyberbullying is solely based on the answers from participants, which could result in an underestimation of the actual rates.

5. Conclusion

There is a limited number of studies on this subject both in Turkey and in the world. It is clear that cyberbullying and victimization have important consequences that affect people's real life. In this study, a significant relationship was found between cyber victimization and increased depression and anxiety scores. Cyberbullying and victimization may occur due to many factors. However, when studies are reviewed, there are no major factors specified so far. Significant difference was found between cyber victimization and owning mobile phone, internet supervision and income level.

The students must be taught how to avoid cyberbullying in informatics classes and what to do in case of experiencing cyberbullying. Families should also be informed about safe internet use and how to monitor their children's online activities. Family physicians should be aware of this issue when consulting adolescents and their parents during routine screenings. When adolescents see a doctor with symptoms such as depression or anxiety, the doctor may ask questions regarding cyberbullying when taking anamnesis.

Moreover, in health screenings, adolescents who are struggling academically or avoiding school could be assessed for potential experiences with cyberbullying. .

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Ethics

Ethics Committee Approval: The study was approved by Necmettin Erbakan University Noninterventional Clinical Research Ethical Committee (Decision no: 2018/1197, Date: 09.02.2018).

Informed Consent: A written permission was obtained from Konya Provincial Directorate of

National Education. Verbal and written consent was obtained from both the students and their families..

Copyright Transfer Form: Copyright Transfer Form was signed by all authors.

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