Determination of Cyber Bullying, Cyber Victimization, Cyber Sensitivity and Virtual Loneliness of Students and their Relationships

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Abstract – **The aim of this study is to determine cyber bullying, cyber victimization, cyber sensitivity, and virtual loneliness of students and their relationships. The study was designed with descriptive and relational model within the framework of quantitative research method. The sample of the study consists of 208 university students. In order to collect data, 4 different scales were used and correlations between descriptive statistics of the scales and the scale scores were employed. Accordingly, especially when the students' scores on the sensitivity scale related to cyber bullying increase, the scores they receive from the e-bullying scale and virtual sharing dimension of the virtual media loneliness scale decrease, which is remarkable.**

Keywords – **Cyber bullying, cyber victimization, cyber sensitivity, virtual media loneliness.**

1. Introduction

The concept of cyber bullying has emerged in the last decade as a serious problem which has spread rapidly in countries where internet and online technologies are used intensively, especially the United States of America and Canada [2]. With technology, the concept of bullying described by Olweus has undergone some changes in terms of communication and psychological aspects [20].

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Anonymous calls, junk e-mails sent with a fake ID, voices, images and texts that include insults and threats which are spread by e-mails or SMS texts with the purpose of scandalizing a person or a group, virus infected e-mails and all of these malicious actions indicate cyber bullying.

Especially social media networks emerge as a phenomenon that should be taken seriously by everyone as they come into contact with every aspect of life [14]. Social networks can affect daily life to this extent, especially due to the attractive environment that can allure the younger generation, easy access and sharing features. However, they have a dark side as well [5].

It is reported that as individuals spend more time on social networks (Facebook, Youtube, Whatsapp, Instagram...etc.) and on technological devices (smart phone, laptop, tablet, PC etc.) they retire from social life, which results in the weakening of social relations and, due to the time spent in visual environment, people get into less contact with their family and social environment; thus, they feel more isolated [24],[18].

The concept of loneliness is expressed as an undesirable situation which is referred to with feelings such as sadness, anger, fear and anxiety that emphasize negativity [23],[8]. It is not manifested by social structure, but by the degree of intimacy between people [7].

In order to be able to intervene against cyber bullying, to recognize the concept of cyber bullying and to gain the coping skills, researching cyber bullying and cyber victimization is important. Cyber victimization is the situation in which an individual or group is exposed to damaging behaviors in a technical or relational manner through information and communication technologies and experiences material or spiritual victimization [27], [10].

A study conducted by Hanewald in London reported that 22% of children were cyber-victimized at least once and 7% were cyber-victimized frequently [15]. Turkish researchers stated that girls were more cyber-victimized compared to boys and students at public schools were more cyber-

victimized than students at private schools [1], [4], [26].

This situation raises the question "does cyber-victimization make these individuals cyber-bullies or cyber-sensitive people?" Cyber sensitivity is defined as behaviors to avoid being exposed to bullying behaviors during the use of cyber tools such as internet and mobile phones, to be aware of the existence of such threats and to take precautions, and to watch out for warnings that may implicate threats [13].

A situation observed in individuals with high cyber sensitivity is increased awareness. Cyberbullying is a situation that can create a perception of threat for the person [22].

Today, the general characteristics, features, sociological backgrounds, desires and political tendencies of the generation Y, which corresponds to the age range of 15-35, should be studied. In general, this generation is defined as free, high in ego, smarter, more self-conscious and self-interested, irresponsible, competitive, and much more inclined to using information technologies [21].

In this context, it is important to examine the students' cyber bullying, cyber victimization, cyber sensitivity, and virtual loneliness levels and relationships which constitute the purpose of the study. For this purpose, answers were sought to the following sub-objectives:

1. What are the socio-demographic characteristics of the students, their use of internet and social media?
2. Is there a significant difference in the students' sensitivity scale for cyberbullying, cyber victimization scale, virtual media loneliness scale and e-bullying scale?
3. Is there a significant difference in the scores of sensitivity scale for cyberbullying, cyber victimization scale, virtual media loneliness scale and e-bullying scale according to the gender of the students?
4. Is there a significant difference in cyberbullying sensitivity scale, cyber victimization scale, virtual media loneliness scale and e-bullying scale scores according to students' daily internet usage time?
5. Is there a significant relationship between students' scores obtained from sensitivity scale for cyberbullying, cyber victimization scale, virtual media loneliness scale and e-bullying scale?

2. Method

2.1. Research Model

This study was designed with descriptive and correlational research models among quantitative research approaches in order to define an existing situation [16]. In correlation model, the relation between variables and the level of that relation is determined [11].

2.2. Sample of the Study

The universe of this research consists of 2100 students in a faculty of education affiliated to a private university in 2018-2019 academic year. The sample consisted of 208 students who were determined by 95% confidence level using simple random sampling method. In the simple random sampling method, the selection of each unit in the universe is made impartially considering the possibility of being equal and independent in the sampling selection[6].

2.3. Data Collection Tool

In order to determine the cyber bullying, cyber victimization, cyber sensitivity, and virtual loneliness levels and the relationships between them, 4 different scale forms and demographic information form prepared by the authors were used in the data collection. The scales used are as follows:

'Cyber Victimization Scale' developed by Aricak, Tanrikulu & Kinay [3], 'Virtual Media Loneliness Scale' developed by Korkmaz, Usta & Kurt [17], 'E-Bullying Scale' developed by Gencdogan & Cikrikci [12], and 'Sensitivity Scale for Cyber Bullying' developed by Tanrikulu, Kinay & Aricak [25].

2.4. Analysis of Data

The data of the study was analysed in SPSS 25.0 software, and socio-demographic characteristics, internet and social media usage status of the students were determined by frequency analysis. Descriptive statistics of Cyber Bullying Sensitivity Scale, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale were also given.

According to the socio-demographic characteristics of students, internet and social media usage status, Cyber Bullying Sensitivity Scale, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale data set were compatible with the normal distribution of Kolmogorov-Smirnov test, QQ graph and skewness-kurtosis coefficients. Parametric hypothesis tests were used in cases where it conforms to normal distribution and nonparametric hypothesis tests were used in cases where it did not fit. Accordingly, independent sample t test was used to compare the scale scores according to gender,

nationality and operating system of the participants, ANOVA was used to compare the scale scores according to the age group, and Kruskal-Wallis H test was used to compare the scale scores according to the daily internet usage times.

3. Findings

Table 1. Socio-demographic characteristics, internet and social media usage of students (n=208)

	f	%
Gender		
Female	95	45,67
Male	113	54,33
Age group		
18-19 years	66	31,73
20-21 years	82	39,42
22 years and older	60	28,85
Nationality		
TRNC	58	27,88
TR	150	72,12
Internet connection at home		
Yes	184	88,46
No	24	11,54
Daily internet usage time		
Less than 1 hour	12	5,77
1-3 hours	43	20,67
3-5 hours	57	27,40
5-7 hours	43	20,67
More than 7 hours	53	25,48
Mobile phone		
Yes	206	99,04
No	2	0,96
OS		
iOS	86	41,75
Android	120	58,25
Mobile phone usage target		
Communication	169	81,25
News Following	111	53,37
Social networks	160	76,92
Education	95	45,67
Online game	56	26,92
Other	5	2,40
Social media tools used		
Facebook	125	60,10
Youtube	135	64,90
Whatsapp	173	83,17
Viber	11	5,29
Snapchat	52	25,00
Instagram	162	77,88
Twitter	34	16,35
Linkedin	6	2,88
Other	4	1,92
The goal of using social media		
Communication with friends	164	78,85
Follow the latest news	132	63,46
Spending time	138	66,35
Other	4	1,92

When Table 1. is examined, it is seen that among the students who participated in the study, 45.67 were females, 54.33% were males, 31.73% were 18-19 years old, 39.42% were 39-42 years old, 28.85% were 22 years old and above, 27.88% were TRNC nationals and 72.12% were Republic of Turkey nationals.

It was reported that 88.46% of students had internet at home, 20.67% used internet for 1-3 hours a day, 27.40% used internet for 3-5 hours a day, 20.67% used internet for 5-7 hours a day, 25.48% used internet for more than 7 hours a day, 99.04% had mobile phones and, among those, 41.75% had IOS operating system and 58.25% had Android operating system. 81.25% of the students used their mobile phone for communication purposes, 76.92% used it for social networks, 53.37% used it for following the news, 45.67% used it for education purposes and 26.92% used it for playing games. It has been observed that 83.17% of students used WhatsApp, 77.88% used Instagram, 64.90% used YouTube and 60.10% used Facebook. It has also been found out that 78.85% of students used social media to communicate with their friends, 63.46% used to follow flash news, and 66.35% used to kill time.

Table 2. Sensitivity Scale for Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale scores of the students

	n	$\bar{x}$	s	Min	Max
Sensitivity Scale for Cyber Bullying	208	33,41	6,09	17	42
Cyber Victimization Scale	208	42,88	6,59	28	72
Virtual Sharing	208	25,49	5,73	8	40
Virtual Socialization	208	17,39	6,94	7	35
Virtual Loneliness	208	17,05	4,43	5	25
Virtual Media Loneliness Scale	208	59,93	10,10	24	96
E-Bullying Scale	208	4,57	7,26	0	35

When Table 2. is examined, it is seen that students who participated in the study received $\bar{x}$=33,41±6,09 points from Sensitivity Scale for Cyber Bullying, $\bar{x}$=42,88±6,59 points from Cyber Victimization Scale. Students received $\bar{x}$=33,41±6,09 points from the entire Virtual Media Loneliness Scale, $\bar{x}$=59,93±10,10 points from virtual socialization sub-dimension, $\bar{x}$=17,39±6,94 from virtual sharing sub-dimension, and $\bar{x}$=17,05±4,43 points from virtual loneliness sub-dimension. Students who participated in the study received $\bar{x}$=4,57±7,26 points from e-bullying scale.

Table 3. Sensitivity Scale for Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale Scores obtained by students by gender (n = 208)

	Gender	n	$\bar{x}$	s	t	p
Sensitivity Scale for Cyber Bullying	Female	95	34,41	6,20	2,186	0,030*
	Male	113	32,58	5,89		
Cyber Victimization Scale	Female	95	43,43	6,03	1,098	0,273
	Male	113	42,42	7,02		
Virtual Socialization	Female	95	24,34	5,73	-2,700	0,008*
	Male	113	26,46	5,58		
Virtual Sharing	Female	95	16,86	6,69	-1,013	0,312
	Male	113	17,84	7,14		
Virtual Loneliness	Female	95	17,01	4,35	-0,112	0,911
	Male	113	17,08	4,52		
Virtual Media Loneliness Scale	Female	95	58,21	9,64	-2,277	0,024*
	Male	113	61,38	10,29		
E-Bullying Scale	Female	95	2,67	5,56	-3,551	0,000*
	Male	113	6,17	8,13		

*p<0,05

When Table 3. is examined, it can be found that the difference between the scores obtained from cyber bullying sensitivity scale, virtual media loneliness scale and its virtual socialization sub-dimension, and E-Bullying Scale are statistically significant according to gender (p <0,05). Female students' scores obtained from the Sensitivity Scale for Cyber Bullying are significantly higher than that of the male students. The scores of male students from the Virtual media Loneliness Scale and from its virtual socialization sub-dimension as well as E-Bullying Scale are found to be higher than with the female students.

There is no statistically significant difference between the scores obtained from the cyber victimization scale and the virtual sharing and virtual loneliness subscales of the virtual media loneliness scale (p> 0.05).

Table 4. Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale Scores of students according to daily internet usage time (n = 208)

	Daily Internet Usage Time	n	$\bar{x}$	s	X^2	p	
Sensitivity Scale for Cyber Bullying	less than 1 hour	12	33,75	7,12	6,179	0,186	
	1-3 hours	43	34,42	6,01			
	3-5 hours	57	34,26	6,13			
	5-7 hours	43	31,72	6,42			
	more than 7 hours	53	32,98	5,44			
Cyber Victimization Scale	less than 1 hour	12	46,58	9,10	3,402	0,493	
	1-3 hours	43	43,81	4,39			
	3-5 hours	57	42,51	5,40			
	5-7 hours	43	42,70	7,73			
	more than 7 hours	53	41,85	7,42			
Virtual Socialization	less than 1 hour	12	22,42	9,39	5,031	0,284	
	1-3 hours	43	24,77	4,98			
	3-5 hours	57	25,51	4,88			
	5-7 hours	43	26,47	5,34			
	more than 7 hours	53	25,96	6,31			
Virtual Sharing	less than 1 hour	12	17,42	9,59	8,361	0,079	
	1-3 hours	43	15,86	6,60			
	3-5 hours	57	15,82	5,16			
	5-7 hours	43	18,88	6,96			
	more than 7 hours	53	19,11	7,72			
Virtual Loneliness	less than 1 hour	12	13,33	3,75	18,248	0,001*	a-b
	1-3 hours	43	17,21	4,18			a-c
	3-5 hours	57	18,47	3,16			a-d
	5-7 hours	43	17,40	5,08			a-e
	more than 7 hours	53	15,94	4,78			
Virtual Media Loneliness Scale	less than 1 hour	12	53,17	17,12	8,604	0,072	
	1-3 hours	43	57,84	8,57			
	3-5 hours	57	59,81	7,79			
	5-7 hours	43	62,74	10,33			
	more than 7 hours	53	61,02	10,55			
E-Bullying Scale	less than 1 hour	12	4,58	7,01	3,457	0,484	
	1-3 hours	43	3,77	6,70			
	3-5 hours	57	3,11	5,49			
	5-7 hours	43	5,33	7,59			
	more than 7 hours	53	6,19	8,85			

*p <0.05 * a: less than 1 hour, b: 1-3 hours, c: 3-5 hours, d: 5-7 hours, e: more than 7 hours*

An examination of Table 4. shows that there is no statistically significant difference between scores obtained from Sensitivity Scale for Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale in general and its virtual socialization and virtual sharing sub-dimensions and e-bullying scale

according to their daily internet usage periods (p>0,05).

It was found that the difference between the scores obtained by students who participated in the study from the virtual loneliness subscale in the Virtual Loneliness Scale was statistically significant according to their daily internet usage period (p <0,05). Students whose daily internet usage time was less than 1 hour scored lower in the virtual loneliness subscale of Virtual Media Loneliness Scale.

Scores obtained by students who participated in the study from Sensitivity Scale for Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-bullying Scale were compared according to their age groups, nationalities, internet connection status at home, and it was found out that there was no statistically significant difference (p>0,05).

Table 5. Correlations between Sensitivity Scale for Cyber Bullying, Cyber Victimization Scale, Virtual Media Loneliness Scale and E-Bullying Scale Scores of students

		Sensitivity Scale for Cyber Bullying	Cyber Victimization	Virtual Socialization	Virtual Sharing	Virtual Loneliness	Virtual Media Loneliness Scale	E-Bullying Scale
Sensitivity Scale for Cyber Bullying	r	1						
	p	.						
Cyber Victimization Scale	r	0,132	1					
	p	0,057	.					
Virtual Socialization	r	0,025	-0,008	1				
	p	0,717	0,906	.				
Virtual Sharing	r	-0,265	0,256	0,340	1			
	p	0,000*	0,000*	0,000*	.			
Virtual Loneliness	r	0,065	0,122	-0,005	-0,411	1		
	p	0,349	0,079	0,946	0,000*	.		
Virtual Media Loneliness Scale	r	-0,088	-0,091	0,812	0,676	0,079	1	
	p	0,209	0,189	0,000*	0,000*	0,255	.	
E-Bullying Scale	r	-0,277	-0,406	0,094	0,308	-0,224	0,170	1
	p	0,000*	0,000*	0,177	0,000*	0,001*	0,014*	.

*p<0,05

When Table 5. is examined, it can be found out that there are statistically significant, negative and low correlations between scores obtained by students who participated in the study from Sensitivity Scale for Cyber Bullying and virtual sharing in Virtual Media Loneliness Scale and E-bullying Scale

(p<0,05). As the scores obtained by students from Sensitivity Scale for Cyber Bullying increase, their scores from virtual sharing in Virtual Media Loneliness Scale and E-bullying Scale decrease.

It is also found that there are statistically significant and negative correlations between the scores obtained from the cyber victimization scale and the scores obtained from the virtual sharing in the Virtual media Loneliness Scale and e-bullying scale (P <0.05). These correlations are negative, and as the scores of the students on the Cyber Victimization Scale increase, the scores of the virtual sharing and E-Bullying Scale decrease.

It is determined that there are statistically significant and positive correlations between scores obtained by students who participated in the study from e-Bullying Scale and sub-scales of Virtual Media Loneliness Scale whereas negative correlations are found out between scores obtained from virtual loneliness scale (p<0,05). Accordingly, as the scores obtained by students from e-Bullying Scale increase, so do the scores they receive from Virtual Media Loneliness Scale in general and its virtual sharing sub-dimension whereas their scores from virtual loneliness scale decrease.

4. Conclusion and Discussion

In this study, which aims to determine the cyber bullying, cyber victimization, cyber sensitivity, and virtual loneliness levels of students and their relationships, important results are obtained based on the findings:

When the socio-demographically remarkable results as regards students are examined, it was observed that almost all students (88.46%) had internet connection at home and that a majority (72.12%) were citizens of the Republic of Turkey. There are several political and academic cooperation schemes between Northern Cyprus and Turkey. It was also concluded that almost all of the students (99.04%) had mobile phones and 76.92% used these devices for entering social networks.

The most recent world social media statistics in the 'Digital in 2019' report published by 'We Are Social and Hootsuite' published in 2019 show that the number has reached 3.48 billion. 45% of the world is using social media and the number of mobile social media users has reached 3.2 billion.

Another noteworthy result is that female students have higher levels of sensitivity to cyber bullying than male students. Studies in the literature which support this result have found that girls become both less cyber bullies and less cyber victims than boys [19],[11].

On the other hand, it has been concluded that male students feel lonelier and more frequently engage in virtual bullying activities in real life compared to

female students. Another result that is parallel to this finding is that, as students' virtual bullying activities increase, the isolation they feel deepens as well. Dogan & Karakus, concluded that adolescents who suffer from loneliness in romantic relationships and family relationships are associated with intense social media usage. In this study, it can be said that male students suffer from similar isolation [9].

The other conclusion is that the age, nationality and internet connection of male and female students do not affect cyber bullying, cyber victimization, cyber sensitivity and virtual loneliness. The only relevant finding is that students whose daily internet usage time is less than 1 hour feel less lonely in daily life than others.

Another result is that as students' cyber sensitivity increases, their e-bullying status decreases slightly. One result that is in parallel with this finding is that virtual bullying activities are decreasing as students become victims in cyber environment. In support of these results, Williams & Guerra reported that individual's thinking that bullying is morally unacceptable prevents him/her from being involved in cyber bullying as both cyberbully and victim [28].

It is expected that this study will shed light on the research of other researchers on cyber-bullying related concepts and their relationships.

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