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Investigation of Students' Cyberbullying Threat Levels in Terms of Various Variables: The Case of a Vocational High School

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This study explores cyberbullying threat levels among vocational high school students and examines the role of exhibiting, being exposed to, and witnessing cyberbullying behaviors. Using a relational survey design, the study was conducted with 361 students using the Cyberbullying Threat Level Scale and a demographic information form. Results indicated that students reported the highest levels of witnessing cyberbullying, followed by exposure and then exhibiting behaviors. Significant correlations were found between the dimensions of cyberbullying, highlighting a correlation between exhibiting and experiencing cyberbullying. Gender differences were found, with male students exhibiting more cyberbullying behaviors and female students being more likely to witness such incidents. Departmental differences showed that computer science students, who receive training in cyber ethics and security, had lower levels of exposure and witnessing compared to their peers. The study highlights the role of anonymity in online platforms, with students using anonymous accounts more likely to engage in cyberbullying behavior. The findings suggest that the unique socio-economic and educational context of vocational high schools may worsen the prevalence of cyberbullying. Targeted interventions, such as mandatory courses on digital literacy and cyber ethics, are recommended to mitigate these problems. Furthermore, promoting empathy-based skills and providing institutional support for cyberbullying victims could reduce the normalization of aggressive online interactions. These findings contribute to the understanding of cyberbullying dynamics and inform prevention strategies tailored to the vocational high school context.

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Introduction

The messages he received on social media such as "You have a very terrible personality. Is your life worth to live?", "Hi. When are you going to die?", Japanese wrestler and Netflix star Hana Kimura shared posts on Twitter about her struggle against cyberbullying before her death (Nugent & Hırwani, 2021). Due to the cyberbullying on the internet, famous Australian advertising face, 14-year-old Amy Everett, gave up on life and committed suicide (Habertürk, 2018). Suicide is commonly associated with a sheltered life where a 10-year-old girl named Ashawnty Davis took her life after getting recorded, getting bullied by a girl and death (Criss & Diaz-Zuniga, 2017), when in fifth grade she uploaded her fight online looking for attention. The illnesses led to serious damage to their body.

With the advances of information and communication technologies, at the center of our lives have been telephones, internet, smartphones and other electronic devices, web applications, mobile applications and software. Internet, information technology tools and digital environments not only have the opportunity to play, socialize and access information for children and young people, but also on the development of personal identity, their interests and hobbies, personal choices and the establishment of social relations in this development, these tools play a role (Borca et al., 2015). But when these platforms are not used with awareness and in a controlled way, they entail a number of risks for young people and children as well. Some of the problems seen in these environments are receiving sexually explicit messages and images, meeting new people over the internet (Kaşıkçı et al., 2014; Turgut & Kurşun, 2020), aggression, threats, harassment, internet and game addiction, communication and relationship building with people met in the virtual environment, seizure of social media accounts and passwords, personal information and photos (Yaman et al., 2017). Another frequently encountered danger is cyberbullying which is considered as a serious problem worldwide.

The act of cyberbullying is characterized by intentional and repetitive acts using electronic communication technologies to torment, intimidate, and harm others (Patchin & Hinduja, 2010). By doing something for a laughing purpose can, in the same time create a bad reaction to the victims of cyber bullying, because, the first the nature of cyber bullying and the environment of that time. Thus, it is required to examine the consequence of a conduct afflicted by cyberbullying both on the victim and deliberate (Kota et al., 2014). Moreover, six disturbing content shared to the target individual in online places is, as soon as it is uploaded, easily shared, can be viewed repeatedly by many people, and can take place in the online environment for a very long time (Bakar, 2015). Hence, one-time performed behaviors are also treated as cyberbullying (Beghin, 2020; Nocentini et al., 2010; Vandebosch & Van Cleemput, 2008).

Environmental aspects where cyberbullying occurs can influence cyberbullying behaviors. Users can conceal their actual names and use pseudonyms in virtual spaces. With the anonymity of hiding one's identity in this environment allows the cyberbullying prone to act as an anonymous user, thereby increasing cyberbullying behaviors (Barlett et al., 2016). While the extreme versions of bullying like “gang stalking” may be difficult to prove, messages, posts and photos can be shared with the wider world in what is called cyberbullying, and its audience is significant as many people can view this. The large, connected audience associated with the environments in which it is more often perpetrated exacerbates the impact of cyberbullying incidents (Nocentini et al., 2010). Cyberspace supports online bullying behaviors carried out through these environments — the results of which are universal, day or night, and difficult to control. Hence, the accessibility characteristic of online environments is detrimental for the

victim of cyberbullying (Tran et al., 2018). In addition, they are more comfortable in online environments and is easy to perform behaviors that the person wouldn't normally do without considering the impact of their behavior. Therefore, the environments offered by online freedom appear to play an important role in how such behaviors, such as cyberbullying, are revealed (Lowry et al., 2016). According to Udris (2014), high school students who behave more freely while in using Internet have a higher chance that they are cyberbullies.

Review of Cyberbullying Behavior Research Findings

These cyberbullying behaviors are exhibited in many environments where information and communication technology tools are used. In this context, instant messaging platforms such as Whatsapp (Aizenkot & Kashy-Rosenbaum, 2019; Peled, 2019), social networking platforms such as Twitter (Das et al., 2020; Mchug et al., 2019), Facebook (Hollá, 2016; Kokkinos et al., 2016), Youtube and Tiktok (Baştürk, 2020) and Instagram (Jain et al., 2020) are among the environments where cyberbullying incidents are seen. In addition, chat and online game environments (Jain et al., 2020; Mesch, 2009), mobile / smartphones (Cohen-Almagor, 2018), calls made via smartphones, text and image messages sent, and e-mail platforms (Lee, 2016) are also among the environments where cyberbullying occurs.

Cyberbullying behaviors encountered on these platforms come in various types. Şahin et al. (2010) stated that sending insulting, threatening and sexually explicit messages to others, taking unauthorized photos and videos, unauthorized access to information on someone else's computer, accessing private messages using personal account passwords, being kicked out of chat and game rooms, and being disturbed by calling with a private number are cyberbullying behaviors. Different from these behaviors, in the focus group interviews conducted by Vandebosch and Van Cleemput (2008) with young people, behaviors such as sending a large number of voice warnings and icon messages to someone, spreading gossip, sharing personal conversations with someone else, changing and distributing someone else's pictures, making humiliating comments about someone, making humiliating comments about someone in chat rooms appear as cyberbullying behaviors. In a study conducted in South Korea, it was observed that individuals who were exposed to cyberbullying in online gaming environments were mostly exposed to insults, swearing, name-calling, threats, spreading rumors, violence against the game character and exclusion behaviors (Tippet & Kwak, 2012).

Individuals involved in cyberbullying incidents are defined within the scope of cyberbullying roles. Cyberbully, one of these roles, refers to individuals who exhibit cyberbullying behaviors towards others, while individuals who are exposed to cyberbullying behaviors are defined as cyber victims (Hellfeldt et al., 2019; Kowalski & Limber, 2007). The role of cyber witness, which refers to individuals who witness cyberbullying, also plays an important role in the impact of cyberbullying incidents. Cyber witnesses, who are also defined as the viewers that cyberbullying materials reached in online environments, can intervene in cyberbullying incidents (Dillon & Bushman, 2015) or become cyberbullies by transmitting cyberbullying elements to others (Huang & Chou, 2010).

Cyberbullying negatively affects the physiological and psychological health of individuals involved in cyberbullying. Individuals who are exposed to cyberbullying have negative effects on their school and academic achievements and friendship relations (Akça et al., 2014), and are observed to be prone to depression and suicidal acts (Schneider et al., 2012). Cyberbullies, on the other hand, develop criminal and substance abuse behaviors in the long term, and may join

friend groups prone to violence (Hinduja & Patchin, 2008). For this reason, various studies on cyberbullying and its prevalence have been conducted in many countries and these studies continue today.

In a study conducted with high school students to determine the prevalence of cyberbullying, it was observed that the prevalence rate of cyberbullying was 18 percent (Gan et al., 2014). In another study, 34 percent of adolescents were involved in cyberbullying incidents (Lee & Shin, 2017). Atkins et al. (2020) stated that 38 percent of adolescents encountered cyberbullying and 21 percent engaged in cyberbullying acts, while another study showed that the rate of cyberbullying among high school students was 59 percent and the rate of encountering cyberbullying was 63 percent (Taştekin & Bayhan 2018). In the study of Çalışkan Pala et al. (2021), the frequency of high school students being cyberbullies was found to be 65 percent.

Undoubtedly, the Covid-19 pandemic period, which caused education, work and social environments to move to online environments, also caused the time spent online to be increased and cyberbullying incidents to be observed more (Kusumawaty et al., 2021; Yang, 2021). It was found that 57 percent of students who actively used the Instagram social networking platform and 80 percent of the 17-18 age group were exposed to cyberbullying during the pandemic period (Jain et al., 2020), and 25 percent of adolescents were exposed to cyberbullying and 50 percent witnessed cyberbullying incidents (Utemissova et al., 2021). In addition, it was stated that receiving education in online learning environments during the pandemic period increased the likelihood of cyberbullying in young people and caused the age of cyberbullying to decrease (Shin & Choi, 2021).

This study was conducted to determine the cyberbullying levels of vocational high school students who participated in distance education during the pandemic period and illuminates the problems seen among vocational high school students through various variables. It is known that students who prefer vocational high schools have low academic achievement (Bozgeyikli, 2019; Eşme, 2007) and their families have low socio-economic levels and have more harmful habits and addictions than other high school students (Erdamar & Kurupınar, 2014). In addition, vocational high school students have a tendency towards violence and physically intervene against each other (Bülbül & Toker Gökçe, 2015). According to the Vocational and Technical Education Management Process Internal Audit Report (Gökmen & Kaş, 2012), vocational high schools are among the schools with the highest number of disciplinary problems. Low student achievement, discipline and behavior problems in vocational high schools may also increase the incidence of cyberbullying among students in these schools. Supporting this situation, Ayas and Pişkin (2011) found that vocational high school students were exposed to cyberbullying more than other high schools. In addition to these studies, Ciminli and Kağan (2016) stated in their study that cyberbullying behaviors are most frequently seen in vocational high schools. Karabacak et al. (2015), on the other hand, concluded that industrial vocational high school ranked second in terms of the frequency of cyberbullying behaviors. However, after cyberbullying occurs in online environments, it can turn into face-to-face peer bullying among students in the school environment or vice versa, peer bullying that starts in the school environment can turn into cyberbullying in cyber environments (Han & Demirtaş, 2020). It has been stated that students who engage in face-to-face peer bullying are also 4.6 times more likely to engage in cyberbullying, and students who are exposed to face-to-face peer bullying have a high frequency of exposure to cyberbullying (Baldry et al., 2016). Similarly, studies indicating that face-to-face peer bullying is an effective cause of cyberbullying are available in the literature (Hemphill & Heerde, 2014; Cappadocia et al., 2013).

In light of this information, vocational high schools often serve students from diverse and disadvantaged socioeconomic backgrounds, which can increase susceptibility to both cyberbullying and face-to-face peer bullying. Research indicates that schools with limited resources and high student-teacher ratios can create environments where bullying behaviors are more likely to occur (Smith & Brain, 2020). Additionally, students attending vocational high schools may experience higher levels of peer competition and social conflicts, which could contribute to bullying behaviors (Jones et al., 2018). This is further supported by studies highlighting the role of school climate and peer relationships in exacerbating bullying incidents (Espelage et al., 2013). Therefore, understanding and addressing these dynamics is crucial for minimizing and preventing problems in the school environment, ensuring a healthy and efficient education and training atmosphere.

When it is considered in this context, knowing the cyberbullying levels of students continuing their education in vocational high schools can contribute to the prediction of the problems that cyberbullying incidents will cause as well as the existing problems of vocational high schools. In this regard, in vocational high schools, which are high schools where behavioral problems and disciplinary problems are frequently seen, cyberbullying problem should be addressed and its causes should be identified and known. In this study, the involvement of vocational high school students in cyberbullying after the Covid-19 pandemic was examined within the scope of the roles of being a cyberbully, being a cyber victim and being a cyber witness. In addition, this study is expected to contribute to the literature by expanding the field on the prevalence and scope of the concept of cyberbullying, which has been the subject of research for years.

This study was conducted to determine the cyberbullying danger levels of vocational high school students within the scope of their roles of exhibiting cyberbullying behaviors, being exposed to cyberbullying behaviors and witnessing cyberbullying behaviors and to examine these levels in terms of various variables. In line with the purpose of the study, the problem statement was determined as;

(1) What are the cyberbullying threat levels of vocational high school students?
   - What are the threat levels of vocational high school students in the basic dimension of cyber victim (exposure)?
   - What are the threat levels of vocational high school students in the basic dimension of cyberbullying (exhibit)?
   - What are the threat levels of vocational high school students in the basic dimension of being a cyber witness (witness)?

(2) Is there a significant relationship between the threat levels of the basic dimensions of cyberbullying of vocational high school students?

(3) Do the threat levels of the basic dimensions of cyberbullying of vocational high school students differ significantly in terms of different variables?

Method

Design

Relational survey studies are known as studies conducted to collect information from a sample selected from a population through questionnaires or interview forms to define attitudes, opinions, behaviors and characteristics (Creswell, 2014). The relational survey model, which is

one of the types of survey models, is a survey model that enables the change and level of the relationship between two or more variables to be investigated (Büyüköztürk et al., 2018).

Study Group

The study group of the research consists of 361 students from a vocational high school of Mersin province, which was selected by convenient sampling method due to ease of transportation and permission. 161 of the participants were female (44.6%) and 200 were male (55.4%). 91 (25.2%) of the students were in 9th grade, 66 (18.3%) in 10th grade, 74 (20.5%) in 11th grade, and 130 (36%) in 12th grade. The distribution of students according to the departments where they continue their education is as follows: accounting department 90 students (24,9%), transportation department 76 students (21,1%), office services department 65 students (18,1%), information technologies 66 students (18,3%) and justice department 64 students (17,7%). According to the mother's literacy level, the number of students whose mother is illiterate is 64 (17.7%), the number of students whose mother is a primary school graduate is 143 (39.6%), the number of students whose mother is a secondary school graduate is 79 (21.9%), the number of students whose mother is a high school graduate is 64 (17.7%), and the number of students whose mother has a university or higher education level is 11 (3%), while according to the father's literacy level; The number of students whose fathers were illiterate was 16 (4.4%), the number of students whose fathers were primary school graduates was 113 (31.3%), the number of students whose fathers were middle school graduates was 122 (33.8%), the number of students whose fathers were high school graduates was 90 (24.9%), and the number of students whose fathers were university graduates or higher was 20 (5.5%). The number of students whose daily internet usage time is 1-2 hours is 59 (16.3%), 3 hours is 52 (14.4%), 4 hours is 47 (13%) and more than 4 hours is 203 (56.2%). The most used social network was Instagram with 215 students (59.6%). In addition, 66 students (18.3%) frequently use Whatsapp, 40 students (11.1%) frequently use Youtube and 40 students (11.1%) frequently use other applications. The number of students using accounts other than their own names in social networks was 108 (29.9%) and the number of students who did not use accounts other than their own names was 253 (70.1%). All these information presented in the Table 1 below.

Table 1: Information about the Study Group

Category	**Subcategory/Details**	**Count**	**Percentage (%)**
Gender	Female	161	44.6
	Male	200	55.4
Grade Level	9th Grade	91	25.2
	10th Grade	66	18.3
	11th Grade	74	20.5
	12th Grade	130	36.0
Departments	Accounting	90	24.9
	Transportation	76	21.1
	Office Services	65	18.1
	Information Technologies	66	18.3
	Justice	64	17.7
Mother’s Education Level	Illiterate	64	17.7
	Primary School Graduate	143	39.6
	Secondary School Graduate	79	21.9

Category	Subcategory/Details	Count	Percentage (%)
	High School Graduate	64	17.7
	University Graduate or Higher	11	3.0
Father's Education Level	Illiterate	16	4.4
	Primary School Graduate	113	31.3
	Secondary School Graduate	122	33.8
	High School Graduate	90	24.9
	University Graduate or Higher	20	5.5
Daily Internet Usage	1-2 Hours	59	16.3
	3 Hours	52	14.4
	4 Hours	47	13.0
	More than 4 Hours	203	56.2
Most Used Social Networks	Instagram	215	59.6
	Whatsapp	66	18.3
	YouTube	40	11.1
	Other Applications	40	11.1
Use of Non-Real Name Accounts	Yes	108	29.9
	No	253	70.1

Data Collection

Data Collection Instruments

In this study, the High School Form of the Cyberbullying Threat Level Scale developed by Kavuk-Kalender et al.(2018) and the Personal Information Form prepared by the researcher was used for data collection.

Cyberbullying Threat Level Scale Middle and High School Forms

In order to determine the cyberbullying levels of vocational high school students, the Cyberbullying Threat Level Scale High School Form developed by Kavuk-Kalender et al. (2018) was used in this study. Necessary permissions were obtained from the researchers for the use of the scale. This data collection tool consists of three main dimensions: exposure, exhibiting and witnessing. The scale includes 17 cyberbullying behaviors for each basic dimension. The threat level for each behavior is calculated in three sub-dimensions. These sub-dimensions are frequency of the problem, perceived severity level, perceived negative impact level. In this scale, five-point Likert-type items were used. The level of influence for each of the items in each main dimension is determined by calculating the sum of the scores obtained from these three sub-dimensions. The sum of the exposure levels of all items expresses the cyberbullying threat level for the relevant core dimension. Cronbach's alpha internal consistency coefficients of the scale were 0.939 for the exposure dimension, 0.952 for the exhibiting dimension and 0.940 for the witnessing dimension.

Personal Information Form

In the personal information form prepared by the researchers, there are nine questions consisting of variables to obtain information about the demographic characteristics of the participants. In this personal information form, there are information about the gender of the

students, their grade level, the department they are studying, the level of education of their parents, the frequency of daily internet use, the social networks they use the most, and the variables of creating accounts other than their own name in social networks.

Data Collection Procedure

Permission to use the data collection instruments was obtained by the researchers. Necessary permissions to do this study were received from Mersin Provincial Directorate of National Education with the decision dated 30/05/2022 and numbered 347762202-605.01-50592897. In addition, the application permission was obtained from Mersin University Social and Human Sciences Ethics Committee with the decision dated 06/06/2022 and numbered 228 that the collection of research data is ethically appropriate.

One researcher carried out the application of the scales personally. A total of 410 students were surveyed with the permission of the relevant school principal. At the beginning of the implementation process, attention was paid to the voluntary selection of the participants forming the study sample and the researcher stated that the participants had the right to leave the study at any time they wanted. After the application process, the questionnaires collected from the students were meticulously examined and 49 questionnaires that were found to be incompletely answered were not included in the data analysis. As a result, a total of 361 questionnaires were included in the data analysis.

Data Analysis

After the data were collected, they were transmitted to the computer environment for analysis. Statistical Package for the Social Sciences (SPSS) 25.0 package program was used for data analysis. According to Kavuk-Kalender et al. (2018), the Cronbach's alpha internal consistency coefficients of the Cyberbullying Threat Level Scale Secondary and High School Form were 0.939 for the basic dimension of exposure, 0.952 for the basic dimension of exhibiting and 0.940 for the basic dimension of witnessing, while in this study it was found to be 0.94 for the basic dimension of exposure, 0.96 for the basic dimension of exhibiting and 0.96 for the basic dimension of witnessing.

The total scores obtained from the scale for the exposure threat level, exhibition threat level, and witnessing threat level constitute the dependent variables of the study. In addition, these basic dimensions are calculated with the total score of sub-dimensions named as frequency of the problem, perceived severity level, perceived negative impact level. The total scores of the sub-dimensions of each basic dimension analyzed within the scope of the research questions of the study constitute the other dependent variables. The independent variables of the study are the variables of gender, grade level, department, level of education of mother and father, frequency of daily internet use, most used social networks and creating accounts other than one's own name in social networks in the personal information form.

It was examined whether the data obtained in the study were normally distributed or not, and as seen in Table 1, it was seen that the data were not normally distributed according to the Kolmogorov-Smirnov p value in the normality test ($p<0.05$).

Table 2: Dependent Variables Normality Tests

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
Exposure	,106	361	,000	,940	361	,000
Exhibit	,162	361	,000	,877	361	,000
Witness	,73	361	,000	,964	361	,000

Since the data obtained in line with the results in Table 1 did not show a normal distribution, nonparametric tests were used to analyze the data. In this context, Mann-Whitney U test was used for variables with two groups and Kruskal-Wallis H test was used for variables with three or more groups. The normality test of the total scores of the sub-dimensions of each core dimension to be examined in the context of the research questions was also performed and it was seen that the total scores of these sub-dimensions did not show a normal distribution. For this reason, correlation analysis was conducted to look at the relationship between each core dimension and sub-dimensions. In correlation analysis, Spearman's coefficient was taken into consideration to interpret the relationship between variables (Kraska-Miller, 2014).

Findings

In this section, the findings obtained from the analysis of the data are explained in detail within the scope of the purpose of the research and the research questions.

Cyberbullying Thread Levels (Exposure, Exhibiting and Witnessing) of Vocational High School Students

Descriptive information about the basic dimension of cyberbullying threat level of the vocational high school students who participated in the study and the sub-dimensions of the frequency of the problem, perceived severity level, perceived negative impact level related to this basic dimension are given in Table 3.

Table 3: Students' Cyberbullying Basic Dimension Threat Levels Descriptive Results

Dimension	**Sub-Dimension**	**N**	**Min**	**Max**	**$\bar{X}$**	**S.D**
Cyberbullying Exposure	Frequency of the Problem	361	17.00	85.00	30.30	11.33
	Perceived Severity	361	17.00	85.00	35.28	15.76
	Perceived Negative Impact	361	17.00	85.00	30.93	14.84
	Overall Threat Level	361	51.00	214.00	96.51	35.45
Cyberbullying Exhibition	Frequency of the Problem	361	17.00	85.00	27.77	12.88
	Perceived Severity	361	17.00	85.00	30.79	15.19
	Perceived Negative Impact	361	17.00	84.00	27.04	14.24
	Overall Threat Level	361	51.00	179.00	85.61	33.98
Cyberbullying Witnessing	Frequency of the Problem	361	17.00	85.00	39.24	16.95
	Perceived Severity	361	17.00	85.00	38.92	16.61
	Perceived Negative Impact	361	17.00	77.00	33.61	16.38
	Overall Threat Level	361	51.00	232.00	111.78	41.76

As seen in Table 3, the average threat level of the basic dimension of cyberbullying exposure was determined as $\bar{X}$=96.51. When these sub-dimensions are examined, it is seen that the

average score of the frequency of the problem is $\overline{X}$=30.30, the average score of the perceived seriousness level is $\overline{X}$=35.28 and the average score of the perceived negative impact level is $\overline{X}$=30.93.

The average threat level of the basic dimension of cyberbullying exhibition was determined as $\overline{X}$=85.61. When these sub-dimensions are examined, it is seen that the average score of the frequency of the problem is $\overline{X}$=27.77, the average score of the perceived severity level is $\overline{X}$=30.79 and the average score of perceived negative impact is $\overline{X}$=27.04.

As seen in Table 3 the average threat level of the basic dimension of cyberbullying witnessing was determined $\overline{X}$=111.78. When these sub-dimensions are examined, it is seen that the average score of the frequency of the problem is $\overline{X}$=39.24, the average score of the perceived severity level is $\overline{X}$=38.92 and the average score of perceived negative impact is $\overline{X}$=33.61.

Correlations Between Basic Dimensions of Cyberbullying

The correlation matrix showing the relationships between the variables of the cyberbullying basic dimensions are given in Table 4.

Table 4: Relationship between Students' Cyberbullying Threat Levels Basic Dimensions

	Exposure	Exhibit	Witness
Exposure	-		
Exhibit	,638**	-	
Witness	,636**	,558**	-

Since the threat levels of the basic dimensions of cyberbullying exposure, exhibiting and witnessing of vocational high school students did not show normal distribution, the relationship between these variables was examined using Spearman correlation coefficient.

As seen in Table 4, it was determined that there was a positive and moderate relationship between exhibiting threat level and the exposure threat level ($r=0.638$, $n=361$, $p<0.01$). According to these results, as the level of exhibiting cyberbullying increases, the level of being exposed to cyberbullying also increases.

When the relationship between the witnessing threat level and the exposure threat level was examined, it was found that there was a positive and moderate relationship between them ($r=0.636$, $n=361$, $p<0.01$). According to these results, as vocational high school students' level of witnessing cyberbullying increases, their level of exposing cyberbullying also increases.

When the relationship between the witnessing threat level and the exhibiting threat level was examined, it was found that there was a positive and moderate relationship between them ($r=0.558$, $n=361$, $p<0.01$). According to these results, as vocational high school students' level of witnessing cyberbullying increases, their level of exhibiting cyberbullying also increases.

Findings Regarding the Basic Dimensions of Cyberbullying Threat Levels in Terms of Various Variables

In this section, it was examined whether the threat levels of the basic dimensions of cyberbullying exposure, exhibition and witnessing basic dimension of cyberbullying of vocational high school students showed a significant difference in terms of various variables.

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the gender variable was examined by Mann Whitney U test, one of the nonparametric test methods. The analysis results for these findings are given in Table 5.

Table 5: Mann Whitney U test Results of Students' Cyberbullying Basic Dimensions According to Gender Variable

	Group	N	M	U	p
Exposure	Female	161	191,19	14459,000	,096
	Male	200	172,80		
Exhibit	Female	161	168,65	14112,500	,043
	Male	200	190,94		
Witness	Female	161	193,18	14139,500	,047
	Male	200	171,20		

As can be seen in Table 5, while there is no statistically significant difference in the basic dimension of cyberbullying exposure of vocational high school students according to gender variable (U= 14459.000, p=0.096, p>0. 05), there was a statistically significant difference in the basic dimension of exhibiting (U= 14112.500, p=0.043, p<0.05) and the basic dimension of witnessing (U= 14139.500, p=0.047, p<0.05) according to the gender variable (p<0.05).

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the grade level variable was analyzed with the Kruskal Wallis H test, one of the nonparametric test methods. The analysis results for these findings are given in Table 6.

Table 6: Kruskal Wallis H test results of students' cyberbullying basic dimensions according to class level variable

	Group	N	M	H	p
Exposure	9 th grade	91	189,41	4,039	,257
	10 th grade	66	167,42		
	11th grade	74	166,89		
	12th grade	130	190,04		
Exhibit	9 th grade	91	190,49	5,731	,125
	10 th grade	66	166,71		
	11th grade	74	162,74		
	12th grade	130	191,00		
Witness	9 th grade	91	181,74	1,807	,613
	10 th grade	66	194,06		
	11th grade	74	170,49		
	12th grade	130	179,83		

As it can be seen in Table 6, it was determined that there was no statistically significant difference in the basic dimensions of cyberbullying exposure (H=4.039, p= 0.257 and p>0.05),

exhibiting (H=5.731, p= 0.125 and p>0.05) and witnessing (H=1.807, p= 0.613 and p>0.05) of vocational high school students according to the grade level variable.

The Kruskal Wallis H test, one of the nonparametric test methods, was used to examine whether the basic dimensions of cyberbullying show a significant difference according to the department variable. The analysis results for these findings are given in Table 7.

Table 7: Kruskal Wallis H Test Results of Students' Cyberbullying Basic Dimensions According to Department Variable

	Group	N	M	H	p
Exposure	Accounting	90	195,96		
	Transportation	76	198,20		
	Office Services	65	191,62	18,344	,001
	IT	66	133,48		
	Justice	64	177,77		
Exhibit	Accounting	90	200,91		
	Transportation	76	199,32		
	Office Services	65	170,74	10,782	,029
	IT	66	160,71		
	Justice	64	162,60		
Witness	Accounting	90	187,66		
	Transportation	76	194,97		
	Office Services	65	196,11	17,214	,002
	IT	66	133,38		
	Justice	64	188,80		

As seen in Table 7, it was determined that there was a statistically significant difference in the basic dimensions of cyberbullying exposure (H=18.344, p=0.001, p<0.05) exhibiting (H=10.782, p=0.029, p<0.05) and witnessing (H=17.214, p=0.002, p<0.05) of vocational high school students according to the department variable.

To determine which groups differed in the basic dimensions of cyberbullying exposure, exhibiting, and witnessing, a Post Hoc test was conducted. The results of the analysis according to the Dunn-Bonferroni Post Hoc test are explained separately for each basic dimension. These results are explained in Table 8.

Table 8: Dunn-Bonferroni Test According to the Exposure Threat Level and the Department Variable

Group	Test Statistics	Std. Error	Std. Test Statistics	p
IT-Justice	62,484	16,907	3,696	,002*
IT-Office Services	64,720	17,554	3,687	,002*

According to the results of the Dunn-Bonferroni test shown in Table 8, there is a statistically significant difference between the information technologies department and the justice department and between the information technologies department and the office services department (p<0.01).

According to the Kruskal Wallis H analysis, it was concluded that there was a statistically significant difference between the groups in the basic dimension of exhibiting (p<0.05). In order to determine whether there is a statistically significant difference between which groups Dunn-

Bonferroni test was done. However, the results of this analysis showed that there was no significant difference between any of the groups (p>0.01).

Table 9: Dunn-Bonferroni Test According to the Witnessing Threat Level and the Department Variable

Group	Test Statistics	Std. Error	Std. Test Statistics	p
IT-Transportation	61,595	17,548	3,510	,004*
IT-Office Services	62,729	18,225	3,442	,006*

According to the results of the Dunn-Bonferroni test shown in Table 9, there was a significant difference between IT department and transportation department, IT department and Office Services in the basic dimension of witnessing (p<0.01).

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the mother's education level variable was examined with the Kruskal Wallis H test, one of the non-parametric tests. The analysis results for these findings are given in Table 10.

Table 10: Kruskal Wallis H Test Results of the Basic Dimensions of Cyberbullying According to the Maternal Education Level Variable

	Group	N	M	H	p
Exposure	Illiterate	64	175,03		
	Primary school	143	184,66		
	Secondary school	79	188,08	2,504	,644
	High school	64	177,02		
	University and above	11	140,45		
Exhibit	Illiterate	64	193,14		
	Primary school	143	175,78		
	Secondary school	79	177,35	1,415	,842
	High school	64	184,82		
	University and above	11	182,18		
Witness	Illiterate	64	180,56		
	Primary school	143	174,50		
	Secondary school	79	187,95	2,074	,722
	High school	64	191,34		
	University and above	11	157,95		

As Table 10 shows, it was determined that there was no statistically significant difference in the basic dimensions of cyberbullying exposure (H=2.504, p= 0.644 and p>0.05) exhibiting (H=1.415, p= 0.842 and p>0.05) and witnessing (H=2.074, p= 0.722 and p>0.05) of vocational high school students according to the mother's education level variable.

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the father's education level variable was examined with the Kruskal Wallis H test, one of the nonparametric tests. The analysis results for these findings are given in Table 11.

Table 11: Kruskal Wallis H Test Results of the Basic Dimensions of Cyberbullying According to the Maternal Education Level Variable

	Group	N	M	H	p
Exposure	Illiterate	16	149,06		
	Primary school	113	186,83		
	Secondary school	122	178,66	1,970	,741
	High school	90	181,31		
	University and Above	20	186,53		
Exhibit	Illiterate	16	172,09		
	Primary school	113	189,76		
	Secondary school	122	174,62	1,384	,847
	High school	90	180,68		
	University and Above	20	178,95		
Witness	Illiterate	16	173,66		
	Primary school	113	187,00		
	Secondary school	122	173,42	1,276	,866
	High school	90	185,53		
	University and Above	20	178,83		

As seen in Table 11, it was determined that there was no statistically significant difference in the basic dimensions of cyberbullying exposure (H=1.970, p= 0.741 and p>0.05) exhibiting (H=1.384 p= 0.847 and p>0.05) and witnessing (H=1.276, p= 0.866 and p>0.05) of vocational high school students according to the father's education level variable.

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the daily internet usage time variable was examined with the Kruskal Wallis H test, one of the nonparametric tests. The analysis results for these findings are given in Table 12.

Table 12: Kruskal Wallis H Test Results of the Basic Dimensions of Cyberbullying According to the Daily Internet Use Time Variable

	Group	N	M	H	p
Exposure	1-2 hours	59	190,14		
	3 hours	52	179,82	,770	,857
	4 hours	47	185,61		
	More than 4 hours	203	177,58		
Exhibit	1-2 hours	59	167,92		
	3 hours	52	163,43	4,479	,214
	4 hours	47	173,95		
	More than 4 hours	203	190,94		
Witness	1-2 hours	59	182,97		
	3 hours	52	184,00	,152	,985
	4 hours	47	176,54		
	More than 4 hours	203	180,69		

As shown in Table 12, it was determined that there was no statistically significant difference in the basic dimensions of cyberbullying exposure (H=0.770, p= 0.857 and p>0.05) exhibiting (H=4.479 p= 0.214 and p>0.05) and witnessing (H=0.152 p= 0.985 and p>0.05) of vocational high school students according to the daily internet usage time variable.

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the social network variable used was examined with the

Kruskal Wallis H test, one of the nonparametric test methods. The analysis results for these findings are given in Table 13.

Table 13: Kruskal Wallis H Test Results of the Basic Dimensions of Cyberbullying According to the Social Network Use Variable

	Group	N	M	H	p
Exposure	Instagram	215	180,91	2,826	,419
	Youtube	40	186,51		
	Whatsapp	66	166,18		
	Other Applications	40	200,40		
Exhibit	Instagram	215	180,69	1,201	,753
	Youtube	40	193,11		
	Whatsapp	66	171,46		
	Other Applications	40	186,30		
Witness	Instagram	215	174,87	3,344	,342
	Youtube	40	201,11		
	Whatsapp	66	178,42		
	Other Applications	40	198,09		

As Table 13 shows, it was determined that there was no statistically significant difference in the basic dimensions of cyberbullying exposure (H=2.826, p=0.419 and p>0.05) exhibiting (H=1.201, p= 0.753 and p>0.05) and witnessing (H=3.344, p= 0.342 and p>0.05) of vocational high school students according to the social network variable.

Whether the basic dimensions of cyberbullying of vocational high school students show a significant difference according to the variable of creating an account on social networks with a name other than their own name was examined with Mann Whitney U test, one of the nonparametric test methods. The analysis results for these findings are given in Table 14.

Table 14: Mann Whitney U Test Results of the Basic Dimensions of Cyberbullying According to Opening Accounts in Social Networks other than Their Name

	Group	N	M	H	p
Exposure	Yes	108	179,29	13477,500	,839
	No	253	181,73		
Exhibit	Yes	108	198,88	11731,500	,033
	No	253	173,37		
Witness	Yes	108	189,99	12691,000	,285
	No	253	177,16		

As presented in Table 14, it is observed that there is no statistically significant difference in the basic dimension of being exposed to cyberbullying (U= 13477.500, p=0.839, p>0.05) and the basic dimension of witnessing cyberbullying (U= 12691.000, p=0.285, p>0. 05), according to the variable of opening an account with a name other than their own name in social networks. While, there was a statistically significant difference in the basic dimension of exhibiting cyberbullying according to the variable of opening an account with a name other than their own name in social networks (U= 11731.500, p=0.033, p<0.05).

Discussion and Conclusion

According to the results of the study, the vocational high school students have higher level of cyber witness, cyber victim, cyberbully in this order when the cyberbullying behaviors

are examined. Our study has a similar outcome as that of Park et al. (2014). This finding is consistent with studies determining that rates of being cyber witnesses among students were high whereas rates of being cyberbullies were low (Li, 2006; Zhou et al., 2013). Once posted, negative posts in virtual social environments in the internet can be viewed by a very high number of audiences (Özmen, 2018). As a result, students have increased exposure to negative situations that take place in these particular settings. We know from this study that the average score of exposure to cyberbullying is higher than the average score of exhibiting cyberbullying behaviour. This finding corroborates with studies from literature (Bayhan, 2020; Huang et al., 2019; Peker & Akbaba, 2016; Zhang et al., 2020; Walrave & Heirman, 2010). Less students defined themselves as cyberbullies maybe because students did not know which behaviours are classified as cyberbullying behaviours or they were not aware (İşman & Açmacı, 2021). Verbal expressions that students use against each other in face-to-face environments, which actually constitute bullying but are considered normal among students, are also exhibited in cyber environments for joking or entertainment purposes (Raskauskas & Stoltz, 2007) may also cause low cyberbullying display scores.

Students who are surer of vocational high schools are those with insufficient families and low academic success, as well as, lots of student oriented problems of that kind of high school (Argün, 2003). Having poor academic performance (low-achievers) tends to increase the risk of being involved in such a phenomenon, in the roles of both a cyberbully and a cyber victim (Schneider et al., 2012; Zhou et al., 2013). This situation is supported by the study of Walrave and Heirman (2010), which stated that cyberbullying is a problem in vocational education. As another result obtained from the study, it was found that there is a significant positive relationship between the extent to which vocational high school students exhibit cyberbullying behaviours and the extent to which they are exposed to cyberbullying behaviours. This result is also supported by studies in the literature regarding the scope of cyberbullying (Bayhan 2020; Bingöl & Tanrıkulu, 2014; Huang & Chou, 2010; Kim et al, 2019; Peker et al, 2021; Sari & Camadan, 2016; Yaman & Peker, 2012; Wright et al, 2018). Although this situation is also evaluated in cyberbullying research, it occurs because there is a type of subject called cyberbully-victims, those who trap in the cyberbully as well as the cyberbully, cyberbully and cyber victims (Hollá, 2016; Lam et al., 2013; Lee and Shin, 2017). This outcome can be attributed to the perceived normalisation of cyberbullying behaviours, where students get desensitised for cyberbullying, treat it as a normal form of interaction and therefore retaliate whenever they experience the same behaviour (Bakar, 2015; Özmen, 2018). Differently, it is already observed by Dilber (2013) the negative relationship between cyberbully and cyber victim.

Another result of this study is that the dimension of witnessing cyberbullying behaviours of vocational high school students has a significant positive relationship with the dimension of exhibiting cyberbullying behaviours. The positive significant relationship between exhibiting cyberbullying behaviours and observing behaviour in the environment was reported by Dönmez and Akbulut (2016), and the fact that individuals can easily exhibit behaviours that they would not do in real life in online environments (Dennehy et al., 2020) may affect cyber witnesses to be cyberbullies. In addition, the perception of cyber witnesses that cyberbullies do not do these behaviours for fun, intentionally and maliciously may also be effective in the emergence of this result (Crosslin & Golman, 2014; İnselöz & Uçanok, 2013).

Another result of our study is that the extent of witnessing cyberbullying behaviours of vocational high school students has a significant positive relationship with the extent of being

exposed to cyberbullying behaviours. Some studies conducted within the scope of cyberbullying in the literature also support this result (Holfeld & Mishna, 2018); Seçkin-Kapucu et al, 2021; Wright et al, 2018). Cyberwitnesses may tend to intervene in cyberbullying, prevent cyberbullying, adopt an attitude against the cyberbully and be on the side of the cyber victim (Baştürk, 2020). Cyber witnesses may be exposed to the behaviours of cyberbullies due to these attitudes.

Men are more likely than women to commit cyberbullying behaviours, whereas women are more likely than men to be cyber witnesses, according to a study that had no significant difference in the dimension of the students being exposed to cyberbullying according to gender. Similarly, research involving males showing more cyberbully behaviour but not being different from each other in terms of cyber victimisation (Bingöl & Tanrıkulu, 2014; Eroğlu et al., 2015; Göldağ, 2017; Pekşen Süslü & Oktay, 2018) and research showing females to be viewed as cyber victims of cyberbullies (Bauman & Newman, 2013; Özdemir & Akar, 2011; Paez, 2018) are also in line with the finding in this research. Inconsistent with the findings of this study, some previous studies found that male students were subjected more than female students to cyberbullying behaviours, and no significant association was found between gender and cyberbullying behaviour (Çiftçi, 2018), and yet another study indicated that being a cyberbully, cyber victim and cyber witness was independent of gender (Park et al., 2014). The findings related to the fact that male students display behaviours of cyberbullying reflect a situation where they take cyberbullying behaviours more frequently than female students is due to their self confidence and self-pleasure that they contain when they act that way (Karabatak et al., 2018), the different ways of educational upbringing of girls and boys (Erdur-Baker, 2010), the higher attitudes of male students towards violence (Balkıs et al., 2005).

It was revealed that there was no significant difference in the basic dimensions of being exposed to cyberbullying behaviours, exhibiting cyberbullying behaviours and witnessing cyberbullying behaviours of vocational high school students according to the grade level variable. The result that being a cyberbully and cyber victim does not show a significant difference in terms of the grade level variable is similar to other studies (Erdur- Baker & Kavşut, 2007; Özdemir & Akar, 2011; Özer & Şad, 2021; Yaman & Sönmez, 2015). Contrary to this finding, there are also studies indicating that being a cyberbully and being a cyber victim differ significantly in terms of grade level (Aşçı, 2018; Semerci, 2017; Yaldıran, 2019).

While the dimensions of being exposed to cyberbullying behaviours and witnessing cyberbullying behaviours of vocational high school students differ significantly in terms of the department variable, the dimension of exhibiting cyberbullying behaviours does not differ significantly in terms of the department variable. The findings obtained show that students of the information technologies department are less exposed to cyberbullying behaviours and less witnessed cyberbullying behaviours compared to other departments. The fact that the students of the information technologies department receive information security, cyber security, information ethics and cyber-crimes training within the scope of vocational high school information technologies field courses and have more knowledge about information ethics may have been effective in the lower risk levels of being exposed to and witnessing cyberbullying behaviours compared to other departments. In addition, considering that information technology students have good skills in using information technology tools, it can be said that this result brings a different perspective to the power imbalance characteristic of cyberbullying, which is based on the fact that individuals with high technology usage skills can do more

cyberbullying and individuals with low technology usage skills can be exposed to more cyberbullying.

Another important result obtained from the study is that students who create an account with a name other than their own name (anonymous account) in social media environments are more likely to be cyberbullies. Studies conducted in this context in the literature also support this finding (Lee, 2016; Seryol & Günbatar, 2021; Tippet & Kwak, 2012) Creating accounts using anonymous identities causes individuals to act more freely and comfortably in online environments. Cyberbullies create an account with a name other than their own name because it is easier to cyberbully others than bullying in real life due to the confidence created by the sense of confidentiality without worrying about being identified (Kayıkçı & Bayram, 2021). This may be a possibility that causes students who create an account with a name other than their own name to become cyber bullies.

The findings of this study underline the complex nature of cyberbullying among vocational high school students and reveal the complex relationships between different roles in the cyberbullying environment. The most common role among students is cyber witnessing, followed by victimisation and, finally, cyber bullying. The high prevalence of cyber witnesses indicates that vocational high school students often take passive roles, observing rather than actively participating in harmful behaviours. This high rate of bystanders highlights the importance of focusing on the bystander effect in cyberbullying interventions, as bystanders can play important roles in perpetuating or reducing cyberbullying. The study's insights into the interrelationship between displaying and experiencing cyberbullying underscore the normalisation of aggression among students, where cyberbullying is often met with similar responses.

Students enrolled in vocational high schools are tangible, measurable evidence of such challenges, and thus the distinct context of vocational high schools may also contribute to the high prevalence of cyberbullying in these settings. Detailed study of cyberbullying cases among students in these schools can be helpful in proving necessary cyberbullying preventive programmes. It claimed that considering the subjects such as informatics, internet ethics and online safety which are included in information technology courses, students studying information technology are less involved in cyberbullying incidents. For this reason, the need for similar training of each student becomes apparent. The coincidence of the study period with the COVID-19 pandemic likely also influenced these results as students spent more time online as opportunities for cyberbullying expanded (Deng & Feng, 2021; Ye et al., 2021). With the pandemic's impact on digital behavior also further highlighting the need to realign the focus of cyberbullying strategies to align with how students shape their online engagement with others, as this behavior may be altered for a long time, research on online significance of cyberbullying is critical.

Recommendations

Based on the research results, various suggestions are presented to solve and prevent cyberbullying among vocational high school students. As can be seen from the results of the study, the cyberbullying levels of information technology department students who have received training on information security and internet ethics within their curriculum seem to be low. Compulsory digital literacy and cyber ethics courses for all students can be effective in helping students to recognise and counter such behaviours.

Considering the strong relationship observed between committing a crime and being a victim, social-emotional learning practices that will improve students' empathy-based skills can be implemented. In this way, while students' emotional intelligence and communication skills develop, it can help them produce healthy solutions in difficult situations and cope with negative emotions.

Based on the common occurrence of cyberbullying among male students, practices such as self-awareness, anger control, and conflict management can be developed to reduce aggressive behaviours among male students. In addition, female students can be supported to stand against sexism and to report the cyberbullying behaviours they are exposed to or witness.

It is also stated in the literature that many students used digital platforms more during the COVID-19 pandemic, and cyberbullying incidents increased during these periods. Educational institutions can create resources for parents to monitor their students' digital activities in these platforms and to recognise cyberbullying behaviours. Parent programmes, resources on digital behaviour and safety will help provide support and focus on respectful online interaction.

Based on the conclusion that anonymous identities in online platforms cause cyberbullying behaviours, educational institutions can organise activities related to the negative consequences of online anonymity. These activities can encourage students to use social media and platforms consciously and responsibly.

Educational institutions can implement a support system that can be integrated into digital platforms for students who are exposed to cyberbullying. Thus, students can be enabled to report cyberbullying incidents instantly, quickly and safely. In addition, peer-supervised support programmes can be developed.

Declarations

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