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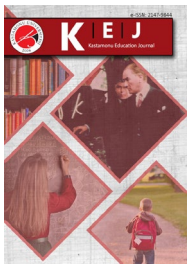

|Research Article / Araştırma Makalesi|

Turkey's Analysis of Cyberbullying and Cyber Victimization of Students in Turkey in Terms of Demographic Variables by Meta-Analysis Method

Türkiye'de Öğrencilerin Siber Zorbalık ve Siber Mağduriyetinin Demografik Değişkenler Açısından Meta-Analiz Yöntemiyle İncelenmesi

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Keywords

1. cyberbullies
2. cyber victims
3. cyberbullying
4. cyber victimization
5. meta-analysis

Anahtar Kelimeler

1. siber zorba
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Abstract

Purpose: Today, as a result of long-term, unsupervised and unconscious use of students' informatics and communication tools, it is seen that there is a very rapid increase in the number of cyberbullying and cyber victimization incidents. The purpose of this study is to investigate the effects of some demographic variables (gender, grade level, mother education level, and father education level and parent coexistence) in secondary school and high school students in being cyberbully and victim by meta-analysis method.

Design/Methodology/Approach: YOK thesis center and dergipark databases have been screened by the keywords of "cyberbullying", "cyber victimization", "cyberbullying", "virtual victimization" and 37 suitable studies have been reached. The studies included in the research were analyzed by meta-analysis method.

Findings: As a result of the study; ıt was found that male students in Turkey to female students, 8. Grade to 5. grade students t students whose parents were graduate to undergraduates, students whose parents were separated from each other than students whose parents were cohabiting were more likely to be cyber bullies and cyber victims.

Highlights: Families should take close care of their children, especially during adolescence, spend qualified time with them and supervise their time of use of Information Technology. Cyber bullying and cyber victimization are more common in students as grade levels rise, in this context students should be regularly informed about safe and responsible internet use, how to use its tools efficiently and effectively, and about cyber bullying and cyber victimization starting in primary school years.

Öz

Çalışmanın amacı: Günümüzde öğrencilerin, bilişim ve iletişim araçlarını uzun süreli, denetimsiz ve bilinçsiz kullanmaları sonucunda siber zorbalık ve siber mağduriyet olaylarının sayısında çok hızlı bir artışın olduğu görülmektedir. Bu araştırmanın amacı, ortaokul ve lise öğrencilerinin siber zorba ve mağdur olmalarında bazı demografik değişkenlerin (cinsiyet, sınıf düzeyi, anne eğitim durumu, baba eğitim durumu ve ebeveyn birlikte yaşama durumu) etkilerinin meta-analiz yöntemiyle incelenmesidir.

Materyal ve Yöntem: Türkiye'de konuyla ilgili yapılmış çalışmalar, YÖK tez merkezi ve DergiPark veri tabanları üzerinden "siber zorbalık", "siber mağduriyet", "sanal zorbalık", "sanal mağduriyet" anahtar kelimeleri ile taranmış, siber zorbalık ve mağduriyet bağlamında gerçekleştirilmiş, araştırmanın amacına uygun 37 çalışmaya ulaşılmıştır. Araştırma kapsamına alınan çalışmalar, meta-analiz yöntemiyle analiz edilmiştir.

Bulgular: Çalışma sonucunda; Türkiye'de erkek öğrencilerin kız öğrencilere, 8. sınıf öğrencilerinin 5. sınıf öğrencilerine, ebeveyni lisans mezunu olan öğrencilerin ebeveyni ilkokul mezunu öğrencilere, ebeveynleri birbirinden ayrı yaşayan öğrencilerin ebeveynleri birlikte yaşayan öğrencilere oranla daha fazla siber zorba ve siber mağdur oldukları anlaşılmıştır.

Önemli Vurgular: Aileler özellikle ergenlik döneminde çocuklarıyla yakından ilgilenmeli, onlarla nitelikli zaman geçirmeli ve bilişim teknolojilerini kullanma sürelerini denetlemelidirler. Siber zorbalık ve siber mağduriyet öğrencilerde sınıf düzeyi yükseldikçe daha fazla görülmektedir, bu bağlamda öğrenciler güvenli ve sorumlu internet kullanımı, bilişim araçlarının nasıl verimli ve etkin kullanılacağı, siber zorbalık ve siber mağduriyet konularında ilkokul yıllarından başlayarak her yıl düzenli olarak bilgilendirilmelidir.

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INTRODUCTION

As a result of technological developments and advances, the use of information tools has become widespread among all individuals, especially among young people. According to the data of the Turkish Statistical Institute (TÜİK), internet access of households in Turkey -it was 41.6% in 2010, 69.5% in 2015- was determined as 88.3% in 2019. In 2018, it was determined that 97.8% of the houses had at least one smart phone. (TÜİK, 2020). While information and communication technologies make it easier for individuals to reach wisdom and communicate with people, they also create new problems. One of the most important of these problems is cyberbullying. As a result of using information and communication technologies for a long time and without the supervision of their parents, children and young people are faced with cyberbullying (Li, 2008; Soydaş Karlıer, 2011).

Willard (2005) described cyberbullying, which has started to be talked about more than peer bullying in recent years, as deliberately sending harmful and unwanted messages or photos to other people using the internet and communication tools while Shariff (2008) defined as websites, instant messaging, blogs, chat rooms, mobile phones threatening, humiliating or sending sexually explicit pictures and messages to other individuals via phones, e-mails and personal online profiles. The main features that distinguish cyberbullying from traditional bullying are that the individual who engages in bullying can hide himself, does not require physical strength, can be easily reached to the victim, has a wide range of influence, can be easily put under pressure, can be done anywhere, at any time of the day, not just at school (Campbell, 2005; Shariff, 2008; Li, Cross and Smith, 2012).

It is stated that cyberbullying behaviors are frequently exhibited by individuals due to reasons such as the desire to establish control over other individuals, to take pleasure from aggressive behaviors, to gain respectability in the circle of friends, to take revenge, to be less likely to be caught compared to peer bullying, and not to communicate with the victim face to face (Kowalski, Limber ve Agaston, 2008). It was stated that students mostly resort to cyberbullying because of jealousy and envy, and they also show cyberbullying behaviors with the feeling of taking the victim out of the group or taking revenge on him (Hoff and Mitchell, 2009).

Individuals who are exposed to bullying behaviors and harmed by means of technological tools are considered as cyber victims (Betts, 2015). Unlike traditional bullying, in cases of cyberbullying, the effects of cyberbullying may be different, as there is no physical exposure to an action (Watts, et al. 2017). Exposure to cyberbullying often negatively affects the individual socially, emotionally, and psychologically (Şahin, Aydın and Sarı, 2012). It has been stated that students who are cyberbullied feel bad (Hunter, 2012), angry and anxious (Beran and Li, 2005) , experience feelings of exclusion and helplessness (Patchin and Hinduja, 2006), cannot establish social relationships (Tokunaga, 2010), have a high rate of committing crimes (Mitchell et al. 2007), do not want to go to school (Raskauskas & Stoltz, 2007), can not succeed in school and have decreased engagement levels (Schneider et al. 2012), experience many problems that can even reach the level of suicide (Hinduja and Patchin, 2009). Kestel and Akbıyık (2016) imlied that cyber victims of secondary school students experienced feelings of fear, anger and uneasiness and avoided sharing the negative situations they experienced with their environment. Cyberbullying on young people; Negative effects such as resorting to violence, depression, substance abuse, self-harm, suicidal thoughts and suicide have been observed (Perry, 2015).

Many recent studies have emphasized that cyberbullying is a common problem for schools all over the world. (Li, 2008: Raskauskas and Stoltz, 2007). It has been found that cyberbullying incidents in schools have increased in recent years and the rates of cyberbullying differ from country to country (5.1% - 41.4%) (Cantone vd., 2015). As a result of the study conducted by Hinduja and Patchin (2017) in primary and high schools in the United States in 2016, it was determined that the rate of encountering cyber victimization at least once in their lives was 33.8%. Similar to the rest of the world, cyberbullying incidents have increased rapidly in Turkey in recent years. As a result of the study conducted by Eroğlu and Peker (2015) with high school students, the rate of students who are cyberbullies is 9%, the rate of students who are cyber victims is 7%, and the rate of students who are both cyberbullies and cyber victims is 72.2%. In another study, it was stated that 65.5% of adolescents experienced cyber victimization and 56.6% showed cyberbullying behaviors (Uludaşdemir, 2017).

Beale and Hall (2007) reported that it was experienced less in primary school, that it started to rise in secondary school and reached its peak in high school. Cyberbullying incidents in schools are seen as an important problem in many countries. The widespread use of the internet and smart phones in school applications, the fact that students are busy with information and communication technology tools in a very important part of their time and frequently resort to bullying reveal the necessity of examining the issue of cyberbullying as a type of violence in schools.

Researches on cyberbullying are of great importance in reducing the cases of cyberbullying and victimization in schools, in providing children and young people with the skills to cope with negative situations, and in using technology more effectively and safely. It is thought that examining the cases of cyber bullying and victimization, which has become an increasingly common problem both in the world and in Turkey, with extensive research will make an important contribution to the literature and practice. When the literature on the subject in Turkey is examined, it has been observed that the negative situations and prevalence of cyberbullying are frequently investigated with various variables such as gender, age, school type, class level, family attitude, parent education level, parental cohabitation status (Ciminli, 2016; Gencer, 2017; Öztürk, 2019; Sabancı, 2018; Tuğ Karoğlu and Çılğın, 2020). Examining cyberbullying, which is one of the most important problems that may occur in children and

young people, is considered important for Turkey, which has a dense young population. In this context, it is aimed to contribute to a clearer view of the big picture in Turkey by combining the results of studies that reveal the relationship between cyberbullying and victimization with different demographic variables, using the meta-analysis method. It is hoped that the results of this research will supply valuable information to families, educators, experts and researchers about the cyberbullying of secondary and high school students. In this context, the aim of the research is to examine the effects of some demographic variables (gender, grade level, mother's education level, father's education level and parental cohabitation status) on the cyberbullying and victimization of secondary and high school students by meta-analysis method.

METHOD

In this part of the study, the research model, data collection process and data analysis process are presented.

Research Model

This research was designed with the meta-analysis method. The meta-analysis, which is a quantitative method, is the statistical analysis of the data from independent primary studiesstatistically combine the results of the studies produced in the literature on the subject under investigation (Cooper et al. 2009). This method offers researchers the opportunity to summarize the results of various studies and reach a common judgment (Chin, 2007). It has been determined that the data used in the research can be accessed from scientific publications, theses and articles that have appropriate data for meta-analysis have been included in the study. In the study, YÖK thesis database and DergiPark platform were used to reach publications examining students' cyberbullying and victimization levels in terms of various demographic variables. A search was conducted using their English language, and a total of 89 publications related to the research were reached. After examining the studies obtained from the databases, the criteria for including the publications in the meta-analysis were determined as follows; 1. It must be produced in secondary and high schools in Turkey until 01.01.2020. 2. The studies should contain the statistical information (arithmetic mean, standard deviation and number of samples) necessary to calculate the effect size. 3. Access to the full text of the publication 5. Examining at least one of the demographic variables examined in the study (gender, education level, parent education level and parental cohabitation). Inclusion criteria were considered and 37 studies were deemed appropriate to be included in the meta-analysis. The flowchart of the inclusion process of the studies in the meta-analysis study is shown in Figure 1.

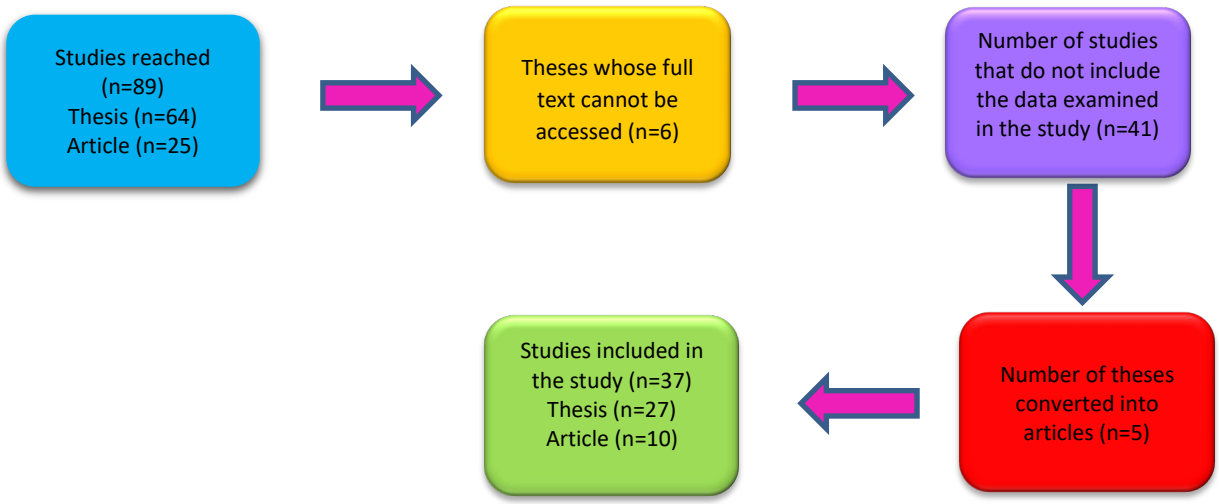

Figure 1. Flow chart

When Figure 1 is examined, it is seen that 89 publications were reached in the study. As a result of the evaluation according to the inclusion criteria, a total of 37 studies, 27 of which were thesis and 10 of which were articles, were included in the study in the last case, and the analyzes were carried out using these studies.

Sample of the Research

The information of 37 studies included in the study was coded according to certain categories (author's name, publication year, number of samples, education level, region of study, mean, standard deviation and sample) using Microsoft Office Excel program. Thus, a coding form containing information about the studies was created. The data included in the study within the framework of the meta-analysis inclusion criteria are presented in Table 1. Table 1 shows the number of these studies, their demographic characteristics and sample sizes.

Table 1. Descriptive statistics of the studies reviewed

Publication year of production								
2010	2012	2013	2014	2015	2016	2017	2018	2019
1	4	5	3	8	6	1	6	3

Geographical region of the study						
Marmara	İç Anadolu	Karadeniz	Akdeniz	Ege	Doğu Anadolu	Güneydoğu Anadolu
22	5	1	1	1	3	3

Release type		**Education Level**	
Thesis	Article	Secondary school	High school
27	10	12	25

		Gender		**Grade (Secondary School)**			**Grade (High School)**		
	n	Male	Female	n	5. sınıf	8. sınıf	n	9. sınıf	12. sınıf
Cyberbullying	35	12479	13324	6	2361	1739	12	2008	1444
Cyber Victimization	23	9289	10125	4	2225	1519	8	1834	1417

		Mother education			**Father education**			**Parent cohabitation**	
	n	University Education	Primary Education	n	University Education	Primary Education	n	Separated parent	Co-parent
Cyberbullying	13	1547	3490	13	2431	2692	9	762	9135
Cyber Victimization	8	968	2316	8	1628	1916	7	675	7092

When Table 1 is examined, it is seen that the highest number of (8) studies were produced in 2015 and 2018. The highest number of studies were produced in the Marmara region, and it was also observed that at least one study was conducted from each region of Turkey. 27 of the examined studies are in the type of thesis and 10 of them are in the type of article. It was seen that 25 of the studies were produced in high schools and 12 of them were in secondary schools. 35 studies were produced for the gender variable for cyberbullying and 23 studies for the cyber victimization and gender variable. While the number of mothers with a primary school education level was 3490, the number of mothers with a bachelor's degree was 1547. For the father's education level, the number of undergraduate and primary school graduate parents was determined to be closer to each other.

Data analysis

In the meta-analysis process, analysis is performed using fixed and random effects models. The fixed effects model calculates all studies with the same degree of impact and weights based on the number of observations given in the study samples (Borenstein, et al. 2009). The random effects model is based on the assumption that the studies examined cannot reach equal results and may be representative of random samples (Cooper et al. 2009). In this model, the effect size value differs due to some demographic characteristics of the samples (Cooper et al. 2009), and this method allows generalization to larger populations (Card, 2011). In meta-analysis studies using published studies as data, the random effects model is recommended (Hunter and Schmidt, 2000; Borenstein et al. 2009). Heterogeneity tests are applied in the model determination process. Meta-analysis was performed using the Comprehensive Meta-Analysis program.

The main purpose of meta-analysis is to calculate the effect size value, which determines the direction and strength of the relationship between two variables (Card, 2011). The effect size value is the basic unit of meta-analysis studies and is the measurement value that shows the size of the relationship between two variables or the application differences. In meta-analysis studies, the effect sizes of the studies examined are calculated separately, and the analysis is made with the help of the calculated values to find the overall effect (Borenstein et al. 2009). In the calculation of the overall effect size value in the study, the mean, standard deviation and sample number values in the studies examined were used. This effect value is used in the comparison of independent group means (Hedges & Olkin, 1985). In this study, the difference between the standardized means (Hedges g index) was calculated as the effect size index and the confidence interval was determined as 95%. For the gender variable in the study, boys as the experimental group and girls as the control group; for the grade level variable, 8th and 12th grade students as the experimental group, 5th and 9th grade students as the control group; for the parents education level variable, those with a bachelor's degree as the experimental group and primary school graduates as the control group; for the variable of parent cohabitation status, parents living separately as the experimental group and living together as the control group were included. A positive effect size in all groups indicates an effect in favor of the experimental group and a negative effect in favor of the control group. In the study, in the interpretation of effect size values, Thalheimer and Cook's (2002) classification $-.15 \leq d < .15$ insignificant; $.15 \leq d < .40$ small effect; $.40 \leq d < .75$ moderate effect; $.75 \leq d < 1.10$ large effect; $1.10 \leq d < 1.45$ extremely large; $1.45 \leq d$ strong effect) was used. During the analysis process, general effect size values were found, and heterogeneity and publication bias analyzes were also made with different methods.

In the study, heterogeneity test was applied to determine the method to be used before data analysis. The level of heterogeneity can be determined by examining the Q, p and I^2 values. If the p value is less than or equal to .05, it is understood that the studies are heterogeneous. In addition, if the I^2 value is less than 25%, the level of heterogeneity is low, if it is 50%, the level of heterogeneity is medium, and if it is greater than 75%, the level of heterogeneity is classified as high (Cooper et al., 2009; Higgins and Thompson, 2002; Pigott, 2012). The results obtained by calculating the Q-test showing the heterogeneity of

the effect sizes of the studies in the meta-analysis and the I^2 value indicating the level of heterogeneity according to the fixed effects model are shown in Table 2.

Table 2. Heterogeneity test results according to the fixed effects model

			K	Degrees of freedom	Q	p	I^2
Cyberbullying	Gender	Male/ Female	35	34	197.37	.00	82.77
	Class	5th grade / 8th grade	6	5	15.84	.01	68.44
		9th grade / 12th grade	12	11	11.21	.42	1.91
	Mother education	University / Primary School	13	12	284.81	.00	95.78
	Father education	University / Primary School	13	12	38.49	.00	68.83
	Parent cohabitation	Co-parent / Separated parent	9	8	29.92	.00	73.26
Cyber Victimization	Gender	Male/ Female	23	22	132.14	.00	83.35
	Class	5th grade / 8th grade	4	3	50.26	.00	94.03
		9th grade / 12th grade	8	7	14.44	.07	44.63
	Mother education	University / Primary School	8	7	19.61	.00	64.29
	Father education	University / Primary School	8	7	26.54	.00	73.62
	Parent cohabitation	Co-parent / Separated parent	7	6	38.14	.00	84.27

According to Table 2, since the I^2 value was calculated as greater than 50% for the variables of gender, mother education, father education, and parental association, medium and high heterogeneity was found, and low heterogeneity was determined for the class variable. It was determined that there was moderate and high level of heterogeneity in the research and it was concluded that it would be appropriate to use a random effects model in the study.

In the study, the publication process (before 2006, the year 2016 and later) and education level (secondary and high school) variables, which are thought to cause differences in the mean effect sizes according to the random effects model, were determined as moderator variables and the analyzes were made using them. Moderator analyzes are performed to determine whether the coded study characteristics (eg year of publication, sample region, study type, etc.) cause differences in effect sizes as a predictor (Card, 2011). In meta-analysis, moderator analysis is planned in line with the purpose of the study and the research process is implemented according to this plan (Littell et al. 2008). The statistical significance of the difference between the moderator variables can be tested with the Q_b value (Hedges and Olkin, 1985). In this method, Q_b tests the homogeneity between groups (Borenstein et al. 2009; Hedges and Olkin, 1985). In the research, evaluations were made by using the Q_b and p significance values in the moderator analysis. In the study, analyzes of publication bias were also made.

Publication bias is based on the possibility that the publications examined within the scope of the research may not be representative of all studies (Rothstein et al. 2005). Inclusion of only statistically significant publications in a meta-analysis study may cause publication bias (Borenstein et al. 2009). Different analysis methods are used to determine publication bias. Funnel Scatterplots are the most widely used of these methods, and then different methods such as Duval and Tweedie's cut and add with Egger's Linear Regression test are used. In this study, Funnel Scatterplots were created in terms of gender variable in order to test publication bias. Then, Duval-Tweedie cut and add with Egger Linear Regression tests were performed. The Funnel Scatterplot showing the gender difference causing publication bias in cyberbully is presented in Figure 2 below.

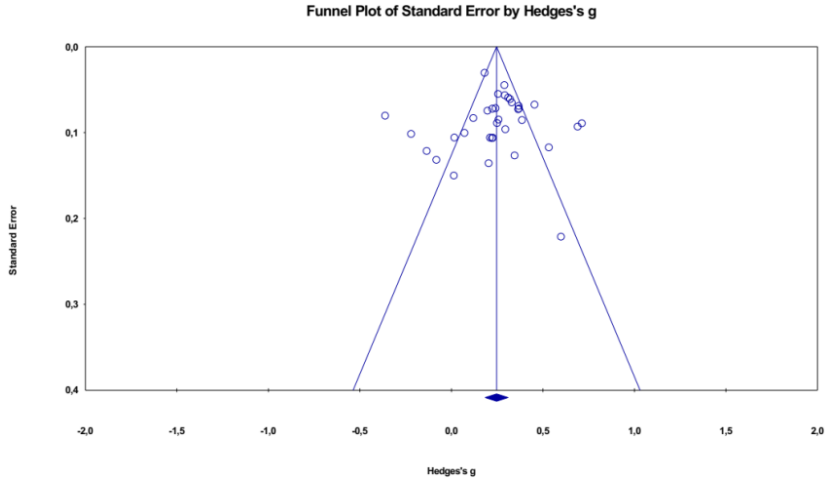

Figure 2. Funnel scatterplot regarding the effect of gender on cyberbullying

In Figure 2, it was seen that the majority of 35 studies included in the study were located at the top of the figure and close to the effect size value. The fact that the studies examined spread symmetrically on both sides of the vertical line showing the overall effect size is an indication of the absence of publication bias (Borenstein et al. 2009). The fact that most of the studies were collected in the lower part of the funnel shape and/or only part of the vertical line indicates publication bias. The resulting

funnel scatter plot showed that there was no publication bias in terms of the studies examined. In Table 3, data on Duval-Tweedie cut and add with Egger Linear Regression tests performed to examine publication bias are presented.

Table 3. Publication bias test data for cyberbullying-examined variables

	Variable		Duval and the Tweedie Method		Egger Regression
			Trimmed Study	Observed/Adjusted	Test (2 tails)
Cyberbullying	Gender	Male/ Female	3	.24 / .21	p=.86
	Class	5th grade / 8th grade	3	.31/ .18	p=.04
		9th grade / 12th grade	4	.05/ .09	p=.06
	Mother education	University / Primary School	1	.17 / .16	p=.62
	Father education	University / Primary School	2	.13 / .07	p=.36
	Parent cohabitation	Co-parent / Separated parent	4	.21 / .03	p=.38

Table 3 shows the data obtained as a result of the Duval-Tweedie cut and add method. This method shows the number of publications that need to be cut to correct the asymmetrical situation in the funnel scatterplot and recalculates the effect size value after the interrupted study. The high difference between the observed value and the corrected value is interpreted as a possible publication bias (Card, 2011). In this study, since the difference between the observed value and the corrected value for the four variables was not statistically significant, it was concluded that there was no publication bias in the study. This means that the effect size of the studies included in the research is symmetrically distributed on both sides of the overall effect size, so there is no publication bias. The difference between the 5th and 8th grades in the grade level variable is high and shows that there may be publication bias. The fact that the Egger regression test was not significant (p>.05) indicates that there is no publication bias in the study (Klassen and Tze, 2014). The p values found in this study showed that there was no publication bias for the variables of gender, mother education, father education, parent association. The Funnel Scatterplot showing the gender difference causing publication bias in cyber victimization is presented in Figure 3 below.

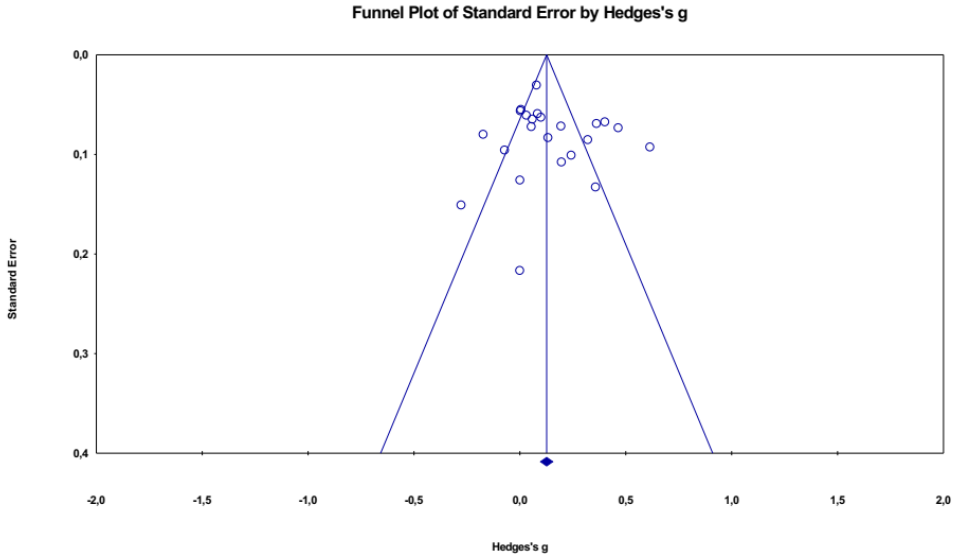

Figure 2. Funnel scatterplot on the effect of gender on cyber victimization

In Figure 3, it is seen that the majority of the 23 publications included in the study are at the top of the figure and are close to the overall effect size value. This Funnel Scatterplot showed no publication bias for the studies reviewed. In Table 4, data on Duval-Tweedie cut and add and Egger Linear Regression tests performed to examine publication bias are presented.

Table 4. Cyber victimization-publication bias test data for the variables examined

	Variable		Duval and the Tweedie Method		Egger Regression
			Trimmed Study	Observed/Adjusted	Test (2 tails)
Cyber Victimization	Gender	Male/ Female	1	.12 / .13	p=.44
	Class	5th grade / 8th grade	2	.19 / .13	p=.01
		9th grade / 12th grade	1	.12 / .09	p=.75
	Mother education	University / Primary School	3	.16 / .25	p=.53
	Father education	University / Primary School	1	.16 / .11	p=.97
	Parent cohabitation	Co-parent / Separated parent	1	.18 / .23	p=.65

Table 4 presents the data found in the Duval-Tweedie cut and add method, which was used to test the publication bias for the variables examined with cyber victimization. In this study, it was concluded that there was no publication bias in the study, since the difference between the observed value for the four variables and the value found after correction was not significant. This means that the effect size of the studies included in the research is symmetrically distributed on both sides of the overall effect size, so there is no publication bias. The difference between the 5th and 8th grades in the grade level variable was high,

indicating that there may be publication bias. In this study, the p values obtained as a result of the Egger regression test showed that there was no publication bias for four variables (gender, mother education, father education, parent association).

RESULTS

The meta-analysis findings regarding the effects of gender, grade level, mother and father education level, and parent cohabitation variables on students' cyberbullies and cyber victims in Turkey are given in this section. Thalheimer and Cook's (2002) classification, which was cited in the method section, was used to interpret the mean effect size. In Table 5, meta-analysis findings regarding the effect of gender variable on students' cyberbullying and cyber victimization are presented.

Table 5. The effect of gender on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	35	25803	.247	.184	.309	7.726	.000*
Cyber Victimization	23	19914	.144	.070	.218	3.824	.000*

According to the meta-analysis results conducted with 35 studies shown in Table 5, the mean effect size value of gender on cyberbullying was calculated between the limits of .184 and .309 (ES: .247) at the 95% confidence interval. Calculated impact valu showed that the effect was significant (z=7.726; p=.000) but small, and that male students did more cyberbullying than female students. According to the meta-analysis results of 23 studies, the mean effect size of gender on cyber victimization was calculated between .070 and .218 limits (ES: .144) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=3.824; p=.000) and too small, and that male students were victims of cyberbullying relatively more than female students. In Table 6, meta-analysis findings regarding the effect of secondary school grade level (8th and 5th grade) on students' cyberbullying and cyber victimization are presented.

Table 6. The effect of secondary school grade level (8th and 5th grade) on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	6	4100	.317	.176	.458	4.414	.000*
Cyber Victimization	4	3744	.192	-.135	.520	1.151	.250

According to the meta-analysis results given in Table 6, the mean effect size value of the secondary school grade level (8th grade and 5th grade) on cyberbullying was calculated between .176 and .458 limits (ES: .317) at the 95% confidence interval. . Calculated impact value showed that the effect was significant (z=4.414; p=.000) but small, and that 8th grade students did more cyberbullying than 5th grade students. According to the results of the meta-analysis conducted with 4 studies, the average effect size value of the class level (8th and 5th grades) on cyber victimization was calculated between -.135 and .520 limits (ES: .192) in the 95% confidence interval. Calculated impact value; showed that the effect was not significant (z=1.151; p=.250) and was insignificant. Table 7 presents the findings regarding the effect of high school grade level on students' cyberbullying and cyber victimization.

Table 7. The effect of high school grade (12th and 9th grades) on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	11	3452	.056	-.014	.125	1.560	.109
Cyber Victimization	9	3251	.122	.022	.221	2.399	.016*

According to the meta-analysis results given in Table 7, the mean effect size value of high school class level (12th grade and 9th grade) on cyberbullying is between -.014 and .125 limits at the 95% confidence interval (ES: .056). calculated. Calculated impact value; showed that the effect was not significant (z=1,560; p=.109) and insignificant. According to the results of the meta-analysis conducted with 9 studies, the mean effect size value of the class level (12th class and 9th class) on cyber victimization was calculated between .022 and .221 limits (ES: .122) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=2.399; p=.016) and small and 12th grade students were exposed to cyberbullying relatively more than 9th grade students. In Table 8, meta-analysis findings regarding the effect of maternal education (undergraduate and primary school) on students' cyberbullying and cyber victimization are presented.

According to Table 8, according to the results of the meta-analysis conducted with 13 studies, the mean effect size of the mother's education status on cyberbullying was calculated between the limits of .044 and .311 (ES: .177) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=2.609; p=.009) and at a small effect, and students whose mothers were undergraduates did more cyberbullying than those whose mothers were primary school graduates.

Table 8. The effect of maternal education status on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	13	5037	.177	.044	.311	2.609	.009*
Cyber Victimization	8	3284	.180	.102	.258	4.532	.000*

According to the meta-analysis results seen in Table 8, the mean effect size of mother's education status on cyber victimization was calculated between .102 and .258 limits (ES: .180) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=4.532; p=.000) but small, and students whose mothers had a bachelor's degree were more victims of cyberbullying than students whose mothers were primary school graduates. In Table 9, meta-analysis findings regarding the effect of father's education (undergraduate and primary school) on students' cyberbullying and cyber victimization are presented.

Table 9. The effect of father's education status on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	13	5123	.130	.015	.245	2.210	.027*
Cyber Victimization	8	3544	.161	.014	.307	2.149	.032*

According to the meta-analysis results seen in Table 9, the mean effect size of father's education status on cyberbullying was calculated between .015 and .245 limits (ES: .130) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=2.210; p=.027) but too small and students whose fathers were undergraduates did more cyberbullying than students whose fathers were primary school graduates. According to the results of the meta-analysis conducted with 8 studies, the mean effect size of the mother's education status on cyber victimization was calculated between the limits of .014 and .307 (ES: .161) at the 95% confidence interval. Calculated impact value showed that the effect is significant (z=2.149; p=.032) but small, and students whose fathers had a bachelor's degree were more exposed to cyberbullying than students whose fathers were primary school graduates. In Table 10, meta-analysis findings regarding the effect of parent cohabitation variable (separate and cohabiting) on students' cyberbullying and cyber victimization are presented.

Table 10. The effect of parental coexistence on cyberbullying and cyber victimization

	k	n	Mean effect size (ES)	95% Confidence Interval		z	p
				Lower Limit	Upper Limit		
Cyberbullying	9	9897	.206	.039	.373	2.420	.016*
Cyber Victimization	7	7767	.183	-.053	.419	1.520	.129

According to the meta-analysis results seen in Table 10, the mean effect size of parental cohabitation on cyberbullying was calculated between .039 and .373 limits (ES: .206) at the 95% confidence interval. Calculated impact value showed that the effect was significant (z=2.420; p=.016) but small and students whose parents lived apart did more cyberbullying than students whose parents lived together. According to the results of the meta-analysis conducted with 7 studies, the mean effect size of parental cohabitation on cyber victimization was calculated between the limits of -.053 and .419 (ES: .183) at the 95% confidence interval. Impact value showed that the effect was not significant (z=1.520; p=.129) but small. The moderator analysis results regarding being a cyberbully are given in Table 11.

Table 11. Moderator analysis results about being a cyberbully

Variable	Moderator		k	Mean effect size (ES)	Heterogeneity (Q_b)	p
Gender	Level	Secondary school	11	.199	1.007	.316
		High school	24	.270		
	Year	Before 2016	13	.251	.007	.928
		2016 and later	22	.245		
School level	Level	Secondary school	6	.317	10.646	.001*
		High school	12	.056		
	Year	Before 2016	7	.173	.572	.479
		2016 and later	11	.113		
Mother education level	Level	Secondary school	4	.157	.044	.834
		High school	9	.195		
	Year	Before 2016	4	.006	4.186	.041*
		2016 and later	9	.267		
Father education level	Level	Secondary school	4	.153	.054	.817
		High school	9	.117		
	Year	Before 2016	4	.012	3.035	.081
		2016 and later	9	.198		
Parent cohabitation level	Level	Secondary school	4	.061	3.578	.059
		High school	5	.314		
	Year	Before 2016	2	-.012	9.883	.002*
		2016 and later	7	.295		

According to the moderator analysis results in Table 11, It was found that the determined moderator variables did not cause any differentiation on the calculated general effect size values, except for 3 cases. The differentiation between 8th and 5th grade students being a cyberbully in secondary schools (ES:.317) was significantly different from the differentiation between 12th and 9th grade students' cyberbullying in high schools (ES:.056, Q_b=10.646; p=.001). In two cases, it was seen that the interval of years in which the studies were carried out played a moderator role on the mean effect sizes. Students whose

mother's education level was undergraduate showed more cyberbullying behaviors in 2016 and later years compared to students whose mother's education level was primary school (Q_b=4.186; p=.041). Students with separated parents showed more cyberbullying behaviors in 2016 and later than students whose parents live together (Q_b=9.983; p=.002). The results of the moderator analysis regarding being a cyber victim are given in Table 12.

Table 12. Moderator analysis results on cyber victimization

Variable	Moderator		k	Mean effect size (ES)	Heterogeneity (Q_b)	p
Gender	Level	Secondary school	7	.127	.077	.781
		High school	16	.151		
	Year	Before 2016	11	.043	9.676	.002*
		2016 and later	12	.248		
School level	Level	Secondary school	4	.192	.164	.686
		High school	9	.122		
	Year	Before 2016	7	.096	1.233	.267
		2016 and later	6	.217		
Mother education level	Level	Secondary school	3	.117	.367	.544
		High school	5	.197		
	Year	Before 2016	4	.063	3.404	.065
		2016 and later	4	.291		
Father education level	Level	Secondary school	3	.143	.005	.946
		High school	5	.153		
	Year	Before 2016	4	.045	3.260	.071
		2016 and later	4	.288		
Parent cohabitation status	Level	Secondary school	3	.126	.196	.658
		High school	4	.231		
	Year	Before 2016	2	.012	1.674	.196
		2016 and later	5	.232		

According to the moderator analysis results in Table 12; It was found that the determined moderator variables did not cause a difference in the overall effect size values calculated except for one situation. According to this finding, it was understood that male students showed more cyberbullying behaviors in 2016 and later years compared to female students (Q_b=9.676; p=.002).

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

In this study, the effect of some demographic variables (gender, class, education of the parents, living together with the parents) on the cyberbullying and cyber victimization of secondary and high school students was examined. In this context, in the light of the findings reached in this section, the results are summarized, discussed based on the literature, and suggestions are made.

As a result of the meta-analysis conducted in the research, it was concluded that the status of being a cyberbully (ES=.247) and a cyber victim (ES=.144) in Turkey differed significantly by gender (p=.00). Accordingly, male students in Turkey show more cyberbullying tendencies than female students and are cyber victims. When the literature is examined, similar to the results of the study (Ang and Goh, 2010; Campfield, 2008; Li, 2007; Notar et al. 2013; Wong Chan and Cheng, 2014; Ybarra et al. 2006) male students are more likely to be compared to female students. It has been concluded that they are more cyberbullies and victims. As a result of a meta-analysis of 109 studies produced in 4 continents (Asia, Europe, America and Australia), it was found that gender differentiated cyberbullying in America, Asia and Europe, while gender did not make a difference for Australia (Barlett and Coyne, 2014). In addition, in this study it was determined that the difference in cyberbullying behavior by gender (boy>girl) for Asian countries is higher than that of other continental countries. Contrary to the results of the study in the literature; It was found that the gender variable did not differentiate being a cyberbully (Keith and Martin, 2005; Slonje and Smith, 2008), and that girls were more cyberbullying than boys (Wolak et al. 2007) and cyber-victim (Schneider et al. 2012). In the study, it was seen that male students in Turkey are more cyberbullies and cyber victims. In Turkey, boys use the internet more than girls (Bayraktar and Gün, 2006; TÜİK, 2019), internet addiction is higher (Esen and Siyez, 2016), violent, aggression and bullying levels are higher (Ayas and Pişkin, 2011), it is understood that it is an expected natural result that men are more cyberbullying. It can be said that the social structure and culture are also effective in the prevalence of cyberbullying behaviors in men. The fact that boys are more cyberbullies and victims in Turkish society can be explained by the reason that boys are given a wider range of freedom than girls, and boys are less controlled or more difficult to control than girls. With the thought that cyberbullying is done with information and communication technology tools, It is more common in Turkish society for male students to access the relevant tools and use these devices more than female students. As a matter of fact, studies have shown that the reason why boys are more cyberbullies than girls is that they use information technology tools for a longer period of time and are less supervised (Bayram, 2017; Burnukara, 2009). The fact that boys experience more cyber victimization than girls is related to the fact that boys spend more time in cyber environments (Ayas and Horzum, 2011). It can be said that the protective attitude of the society towards girls may be effective in the lower level of cyberbullying and victimization of girls compared to boys.

In the research, it was concluded that cyber bullying and cyber victimization differ in grade levels at secondary school level in Turkey. According to this, 8th grade students show more cyberbullying behavior and experience cyber victimization compared to 5th grade students in Turkey. However, in the study, it was concluded that the cyberbullying situation did not differ significantly between 9th grade students and 12th grade students. In this context, it can be said that cyberbullying and being a victim are frequently experienced in 8th grade and later grades. When the previous studies are examined, studies that emphasize that the level of cyber victimization increases as the grade level increases (Burnukara, 2009; Campbell, 2005; Metli, 2017; Serin, 2012) supports the conclusion reached in the research. In the study, it was observed that the differentiation between 8th grade and 5th grade students was especially high. As a matter of fact, it has been determined that the most common age range for cyberbullying is 13-15 (Calvete et al. 2010). Tokunaga (2010) stated that the student group in which the tendency to be cyberbully is most common is 7th and 8th grade students. Ybarra and Mitchell (2004) stated that students in the 15-17 age range exhibit more cyberbullying behaviors than students in the 10-14 age group. Kowalski and Limber (2007) stated that the tendency of students aged 11-14 to show cyberbullying increased as the grade level increased. In some studies, it has been concluded that cyberbullying does not differ according to grade levels (Elmas, 2016; Slonje and Smith, 2008).

In the study, it was concluded that with the increase in the grade level, the cases of cyber bullying and cyber victimization also increased. With the increase in class level and age, students' ability to use technology and access to information technology devices increase. In addition, due to the characteristics of the adolescence period, individuals' desire to be more visible in this process, to show themselves as stronger and to attract attention among their friends may be among the reasons why cyberbullying tendencies are widespread, especially during adolescence. It can be interpreted that upper-class students' spending more time on the internet and feeling more free are effective in becoming cyberbullies and victims. Lower grade students, on the other hand, may be more inexperienced and inadequate in the use of information tools, and for this reason, they may be less cyberbullies and cyber victims than upper grade students.

In the study, it was concluded that the status of being a cyber bully and a cyber victim in Turkey differed significantly according to the educational status of the parents (p=.05). Accordingly, in Turkey, students whose parents have a bachelor's degree tend to be more cyberbullying and are more cyber victims than students whose parents are primary school graduates. When the literature is examined, there are studies showing that the higher education level of the parents increases the tendency of adolescents to display cyberbullying behaviors more (Çiftçi, 2015; Dalmaç, 2014; Evegü, 2014; Türkoğlu, 2013). Laftman, Modin and Östberg (2013) stated that the mother's bachelors'degree increases the probability of students being cyberbullies and cyber victims. As a matter of fact, Baykal (2016) stated that adolescents whose mothers have a bachelor's degree are more cyber victims than those whose mothers are graduates of secondary school. However, contrary to the results of the research, Sarak (2012) stated that adolescents with low educational level of parents show more cyberbullying behaviors and experience more cyber victimization than adolescents with higher education level. In some studies, it has been stated that the education levels of parents are not a significant variable in students being cyberbullies (Gencer, 2017; Makri-Botsari and Karagianni, 2014; Ünver, 2016). These adolescents may show more cyberbullying behaviors because the children of parents with career-oriented higher education can have information tools more easily and at an earlier age, and because parents cannot adequately control their children's internet use due to their workload. As a matter of fact, Ybarra and Mitchell (2004) stated that the children of parents with a higher annual income are more involved in cyberbullying.

As a result of the meta-analysis conducted in the research, it was concluded that students' cyberbullying and cyber victimization differed significantly according to their parents' living together (p=.05). Accordingly, it can be said that students whose parents live apart from each other are more cyberbullying and experience more cyber victimization than students whose parents live together. In a study conducted by Öngider (2006), the fact that the adolescents with co-parent parents have difficulty in controlling their impulses and exhibit negative behaviors towards their environment explains the higher cyber bullying and victimization scores of the adolescents with co-parent families compared to the adolescents with married families. Laftman, Modin, and Östberg (2013), as a result of their research, stated that the loss of at least one of the parents increases the probability of students to become cyberbullies or cyber victims.

As a result of the moderator analysis, the differentiation between 8th and 5th grade students' cyberbullying in secondary schools (ES:.317) is significantly different from the differentiation between 12th and 9th grade students' cyberbullying in high schools (ES:.056, Q_b=10.646; p=. 001). In the research, compared to the previous five years in 2016 and later; Students whose mothers graduated from an institution at the undergraduate level showed more cyberbullying behaviors than students whose mothers graduated from primary school, and students whose parents lived separately (Q_b=9.983; p=.002). In addition, boys showed more cyberbullying behaviors than girls in 2016 and later years compared to the previous 5 years (Q_b=9.676; p=.002). In the light of this result, it can be said that cyberbullying incidents have increased since the 8th grade, when it is thought that the opportunity to access technology has increased and a freer life has begun. In addition, it is thought that more variations have been observed since 2016. This situation can be explained by the fact that students have more information and communication tools in recent years and they are busy with these tools for more hours. As a matter of fact, TÜİK (2019) data supports this result.

It would be beneficial to conduct qualified training activities for school administrators, guidance specialists, teachers and parents at regular intervals regarding the causes and consequences of cyberbullying behaviors, the solutions developed for these problems, and the variables affecting cyberbullying. Such activities can be beneficial in raising the awareness of the

relevant masses about cyberbullying, preventing adolescents from showing cyberbullying behaviors and experiencing cyber victimization. Male students are in a higher risk group for cyberbullying than female students. In this context, parents should monitor which websites their children visit, which groups they belong to, negative situations should not be ignored, and they should be more careful in monitoring and protecting their children with the fact that boys are at higher risk. Families should pay close attention to their children, especially during adolescence, spend quality time with them and control the time they use information technologies. The incidence of cyberbullying and victimization is seen more and more as the grade level rises, in this context, students should be regularly informed every year starting from primary school on safe and responsible internet use, how to use information tools efficiently and effectively, and cyberbullying and cyber victimization. One of the reasons for showing cyberbullying behaviors is the boredom that arises from not knowing the value of time and not using it in a qualified manner. In this context, teachers and parents can direct students to courses such as playing instruments, swimming, mind games, theater, folk dances and drama outside the internet. It is important to adopt a holistic approach and produce more inclusive research with different groups in order to reduce the problems related to cyberbullying. It is thought that the design of studies using qualitative methods such as case study, observation and interview, which allows in-depth research, will make important contributions to the solution of the problem.

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Author's Contributions

There is only one author of this article. Yılmaz Sarıer is responsible for all of the work done for this article.

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Note: References marked with an asterisk indicate studies included in the meta-analysis.

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