A study on self-esteem, mother, father, and peer relations as predictors of cyberbullying and cyber-victimization in high school students[1]

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Abstract

Cyberbullying is not a problem only based on the the adolescents' individual characteristics, but also it is better understood by considering the other environmental characteristics such as family and peers. Fundamental aim of this research is to investigate self-esteem and relationships with mother, father and peers as predictors of cyberbullying and cyber-victimization in high school students. The study is conducted using a correlational design. Research group consisted of 1085 students (554 female, 531 male). For the analysis of research data, since the data violated the assumptions of normality, a method of nonparametric Robust Regression Analysis was used. The findings of the study unveiled that the statistical analysis. In terms of cyberbullying model, meeting the expectations of mother's relationships were negative, the regulations of norms of father's relationships subscale were negative and whereas the loyalty of the peer relationships subscale was positive significant predictors. In terms of cyber-victimization model, self-esteem was negative, meeting the expectations of mother's relationships subscale were negative, in the peers relationships subscale trust and identification were negative, loyalty was positive and self-disclosure was positive significant predictors.

Keywords: cyberbullying; cyber-victimization; high school students; self-esteem; mother-father relationships; peer relationships.

1. Introduction

Especially among children and youth, wide use of internet based devices conducted to bullying behavior at schools through technology. This type of bullying which is called cyberbullying or virtual bullying recently became an issue.

Hinduja and Patchin (2009, p.1) define cyberbullying as "the use of computers, mobile phones, and other electronic devices repeatedly and insistently, to give harm to someone." An example to cyberbullying behavior is sending e-mails and messages with insulting, threatening, humiliating content to the victim's e-mail accounts, chat rooms, social networks. Examples of cyberbullying behaviors include sending offensive, threatening, humiliating messages and postings to victim e-mails, chat rooms, social networking sites. Another act of cyberbullying is posting photos and images taken by smart phone cameras on internet.

Children's and adolescents' use of information and communication technologies without limits and control lead them to encounter cyber-victimization and cyberbullying. Research on this issue indicates that this a is a worldwide problem. Following researches analyze cyberbullying in respective countries: (Kowalksi & Limber, 2007) in the USA, (Huang & Chou, 2010) in Taiwan, (Walrave & Heirman, 2011) in Belgium, (Navarro, Yubero, Larrañaga & Martínez, 2012) in Spain, and (Arıcak, Siyanhan, Uzunhasanoğlu, Sarıbetoğlu, Çıplak, Yılmaz & Memmedov, 2008; Erdur-Baker & Kavsut, 2007; Serin, 2012) in Turkey. These researches point that cyberbullying rates vary from 4 to 21%, whereas rates from 4 to 35% cyber-victimization.

Correlational researches in the context of cyberbullying and self-esteem shows inconsistent relations regarding self-esteem and being a cyberbully. For instance, some researches point to a correlation between low self-esteem and being a cyberbully (Tanrıkulu, 2013), whereas some indicate a correlation between being a cyberbully and high self-esteem (Özel, 2013; Yaman, Eroğlu, & Peker, 2011). On the other hand, researches on correlation between self-esteem and cyber-victimization revealed consistent results. Many researches indicate a correlation between cyber-victimization and low self-esteem (Brewer & Kerslake, 2015; Brighi, at al., 2012; Cenat, at al., 2014). Patchin & Hinduja (2010) assert that although cyberbullies and cybervictims have lower self-esteem compared to people who are not, the correlation between cyber-victimization and self-esteem is higher compared to correlation between cyberbullying and self-esteem.

Parenting styles and parenting practices have been discussed in the related literature in terms of parent-adolescent relations. Although the distinction between parenting styles and parenting practices is not always clear, parenting styles is defined as the general emotional atmosphere created by parents in parent-child relations. On the other hand, parenting practices is defined as goal-oriented attempts to form or change the child's behavior with certain socialization goals (Darling & Steinberg, 1993).

Parenting practices are generally considered in two dimensions as, control and support (Barber, 1996; Barber, Stolz, & Olsen, 2005). Parental control is a multi-dimensional concept including strategies of criticizing, withholding affection, and inducing guilt that would have negative effects on the child, and adolescent control and supervision that would have relatively positive effects. This concept has been considered under "psychological control" and "behavioral control" (Barber, 1996). Psychological control is attempts of controlling the child's attitudes, feelings, and thoughts. That type of control is understood as attempts forcing the emotional and psychological development of the child, and as socializations that are insensitive to the needs of the child. On the other hand, behavioral control is defined as practices of controlling the child's behavior, setting rules, and observing. In other words, it is a type of control that attempts to organize and control the child's behavior by setting proper rules and limits within the frame of domestic and societal norms (Barber, 1996).

In literature, there are few studies that examine parent-adolescent relations with a focus of cyberbullying involvement. There is an argument that positive parental relations may be important in risky behaviors encountered by adolescents on internet. It was observed that authoritarian parenting styles play a role in being a cyberbully and cyber victim (Dilmaç & Aydoğan, 2010), whereas perceived parental social support has a negative correlation with cyberbullying and cyber-victimization, as well as having a protective effect (Fanti, Demetriou & Hawa, 2012; Wang, Nansel & Iannotti, 2011). Another research points to the importance of communication-based parent-adolescent relations; in this research self-disclosure of the adolescent regarding his/her online behavior was found to has a negative correlation with cyberbullying behavior (Law, Shapka & Olson, 2010).

The study about underlying factors behind cyberbullying conducted by Cross, et al. (2015) revealed that with regard to the peer group influence, having friends supporting/performing cyberbullying supports performing cyberbullying at peer level. They also assert that normative expectations and perceived social norms related to cyberbullying have effect on involving in

cyberbullying. They emphasize that peer group members perceiving a higher prevail of cyberbullying than reality would increase that type of behavior. Similarly, Sasson and Mesch (2014) found that adolescents involving in risky online behavior believe that their peers are also involved in and approve such behavior. The perception that risky online behaviors are supported by peer group members increases involvement in such behaviors. Therefore, it can be said that the cyber environment is used as a means to sustain peer group norms.

Cyberbullying advancing hand in hand with the development and proliferation of technology threatens individual and social lives, which necessitates further research on psychosocial processes at the root of this phenomenon. First families, then peer groups play an important role in adolescent psychosocial development (Harris, 1995). And according to the Ecological System Theory of Bronfenbrenner (1986; 1995), individual development occurs within mutual interactions among individual and environmental aspects. It is stated that cyberbullying behavior is not a problem only arising from individual characteristics of adolescents, but beyond that it can be understood within the context of interrelations between social factors of family and peer groups, and the general context (Baldry, Farrington & Sorrentino, 2015). Therefore, it seems necessary and important to study the widespread phenomenon of cyberbullying among adolescents by taking both individual characteristics (self-esteem) and close environmental factors (parental and peer relations). Literature on cyberbullying studies displays that current approach is in this way (Cross et al., 2015). It is striking that there are very few cyberbullying researches in this line in Turkey. This study undertakes this line of research by considering both individual and environmental factors in cyberbullying and cyber-victimization behaviors, and ventures on giving a support to the design of multi-dimensional prevention and intervention programs. The aim of this study is to investigate self-esteem, mother, father and peer relations as predictors of cyberbullying and cyber-victimization in high school students.

2. Method
2.1. Research Model
Research model of this study is correlational design, and the aim is to investigate self-esteem, mother, father and peer relations as predictors of cyberbullying and cyber-victimization in high school students.

2.2. Study Group
The study group of this study consists of 1085 students (554 girl, 531 boy) from 14 state and private high schools (attending to the preparatory grade, and 9, 10, 11 and 12th grades in the 2014-2015 academic year) located in Kadıköy and Maltepe districts of city of İstanbul. Schools were chosen based on their high number of students and good accessibility. Their ages vary from 14 to 17 (Mean =15.4, SD = 1.1). Convenience sampling method was preferred in determining the schools to apply selected measurement techniques (Büyüktürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel, 2015). According to this method, the researcher can collect data from a sample that he/she would easily access and get permission to conduct the required questionnaires. Demographics information of the subjects are presented in Table 1.

Tablo 1. Frequency and Percentage Distributions of Demographics of the Subjects (N=1085)

Variable	Group	f	%	Valid %	Cumulative %
Gender	Girl	554	51,1	51,1	51,1
	Boy	531	48,9	48,9	100,0
Age of the student	14	274	25,3	25,3	25,3
	15	271	25,0	25,0	50,2
	16	287	26,5	26,5	76,7
	17	253	23,3	23,3	100,0
Type of school	State	546	50,3	50,3	50,3
	Private	539	49,7	49,7	100,0

2.3. Data Collection Tools
2.3.1. Cyberbullying Scale

Cyberbullying Scale was developed by Arıcak, Kınay, and Tanrıkulu (2012). It is a single-factor scale, and this factor explains 50.58% of the total variance. Cronbach Alpha coefficient of the whole Scale was found as .95, and test-retest reliability coefficient as .70.

Cyberbullying Scale consists of 24 items, and it is a four-level Likert type scale. Minimum point to be taken in this scale is 24, and maximum point is 96. Higher points refer to higher levels of cyberbullying (Arıcak, Kınay, and Tanrıkulu, 2012).

2.3.2. Cyber-victimization Scale

Cyber-victimization Scale was developed by Arıcak, Tanrıkulu, and Kınay (2012). This is a single-factor scale, and this factor explains 30.17% of the total variance. Cronbach Alpha coefficient of the whole Scale was found as .89, and test-retest reliability coefficient as .75.

Cyber-victimization Scale consists of 24 items; each being questions to be answered by "Yes" or "No." Minimum point to be taken in this scale is 24, and maximum point is 48. Higher points refer to higher levels of cyber-victimization (Arıcak, Kınay, and Tanrıkulu, 2012).

2.3.3. Rosenberg Self-esteem Scale

This scale was developed by Morris Rosenberg in 1965 to determine the self-esteem levels of individuals. It consists of 63 questions and 12 sub-categories. The Rosenberg Self-esteem Sub-scale used in this study is a four-level Likert type sub-scale, and constitutes the first 10 items of the inventory. Validity and reliability of this scale in Turkey was measured by Çuhadaroğlu (1986). Validity coefficient of the scale was found to be .71, and test-retest reliability approach was preferred in the study of its reliability. Constancy coefficients vary between .46 and .89 (Çuhadaroğlu, 1986).

The scale is a four-level Likert type scale with 10 items. Answers given to the scale are given 0 to 6 points. Higher points refer to low self-esteem levels.

2.3.4. Parent-Adolescent Relations Scale

Parent-Adolescent Relations Scale was developed by Kaner (2002a). Mother Relations Scale (MRS) and Father Relations Scale (FRS) can be graded separately, or together, giving a total point. Structural validity of MRS was measured by Kaner (2002a) using principle component analysis. 7 factors and 30 items were obtained with the principle component analysis, and the variance was found as 61.4%. Similarly, structural validity of FRS was determined with the principle component analysis, and 8 factors and 37 items were obtained; its variance was found as 60.1%. For the Mother Relations Scale the following 7 factors were obtained as the result of principle component analysis: Close Communication, Making Activities Together, Sensitivity, Love and Trust, Supervision, Organizing the Norms, and Fulfillment of Expectations. For the Father Relations Scale, the analysis gave same factors, plus one more which is Home Rules.

Cronbach Alpha coefficient for the reliability of MRS is .92, and the Split-half coefficient is .83 for the whole test. And Cronbach Alpha coefficient for the reliability of FRS is .93, and the Split-half coefficient is .82 for the whole test.

Parent-Adolescent Relations Scale is a five-level Likert type scale. Higher points refer to more positive relations between parents and adolescent (Kaner, 2002a).

2.3.5. Peer Relations Scale

Peer Relations Scale was developed by Kaner (2002b), it consists of 18 items, and 4 sub-dimensions: Commitment, Trust and Identification, Self-disclosure, and Loyalty.

Cronbach Alpha coefficient of the scale is calculated as .86, and Spearman Brown split-half coefficient is .73 for the whole test. Test-retest reliability of Peer Relations Scale is .93.

Its is a five-level Likert type scale, with lowest point being 18, and highest point 90. Higher points refer to more positive relations with peers (Kaner, 2002b).

Alpha (α) coefficients for the reliability analysis of all data collection scales used in this study were calculated as follows: Cyberbullying Scale (α=0.899), Cyber-victimization Scale (α=0.881), Self-esteem Scale (α=0.771), Mother Relations Scale Total (α=0.941), Father Relations Scale Total (α=0.951) and Peer Relations Scale (α=0.871). These reliability coefficients indicate that those scales are highly reliable for this study, except for the Self-Esteem Scale which is considered as moderately reliable (Kalaycı, 2006: p. 405).

2.4. Data Analysis

All data collected with scales used to study self-esteem, mother, father, and peer relations as predictors of cyberbullying and cyber-victimization in high school students were analyzed using SPSS 18.0 and open source code **R 3.2.0** statistics program. R statistics program was used in the Bootstraping technique and Robust regression analysis. Since points obtained from scales applied to high school students did not display a normal distribution, a non-parametric robust regression analysis was used.

3. Findings
3.1 Descriptive Statistics of Points Taken by High School Students with the Scales

Table 2. Descriptive Statistics (N=1085)

Scale	Scale Sub-dimension	$\overline{X}$	ss	Point Range (Min-Max.)
Cyberbullying Total Points		28,27	6,46	24-96
Cyber-victimization Total Points		28,33	4,61	24-48
Self-esteem Total Points		1,19	0,90	0-6
Mother Relations Scale Total Points		122,07	20,99	30-150
	MRS Close Communication	21,20	6,88	6-30
	MRS Making Activities Together	19,36	5,48	5-25
	MRS Sensitivity	22,07	3,94	5-25
	MRS Love and Trust	23,04	3,33	5-25
	MRS Supervision	15,21	3,41	4-20
	MRS Organizing the Norms	13,66	2,12	3-15
	MRS Fulfillment of Expectations	7,53	2,18	2-10
Father Relations Scale Total Points		137,83	28,18	37-185
	FRS Close Communication	24,21	8,82	8-40
	FRS Sensitivity	25,46	5,04	6-30
	FRS Making Activities Together	18,83	5,74	5-25
	FRS Organizing the Norms	23,32	5,58	6-18
	FRS Love and Trust	17,94	3,29	4-20
	FRS Supervision	12,83	4,01	4-20
	FRS Fulfillment of Expectations	7,42	2,26	2-10
	FRS Home Rules	7,82	2,10	2-10
Peer Relations Scale Total Points		69,48	11,53	18-90
	Commitment	34,66	5,52	8-40
	Trust and Identification	15,67	3,25	4-20
	Self-disclosure	10,19	3,56	3-15
	Loyalty	8,97	3,37	3-15

3.2 Findings Related to the Prediction of Cyberbullying Points of High School Students

Table 3. Robust Regression Analysis of Self-esteem, Mother, Father, and Peer Relations Scale Points as Predictors of Cyberbullying and Cyber-victimization in High School Students

Model	R	R²	Corrected R²	ANOVA	
				F	**p**
1	0,362	0,131	0,114	8,01	0,000**

*** $p < 0,001$**

Predictor (Independent) Variable: (Constant), Loyalty, Self-esteem Total Points, FRS Home Rules, MRS Organization of Norms, Self-disclosure, MRS Close Communication, FRS Love and Trust, Trust and Identification, FRS Fulfillment of Expectations, FRS Supervision, MRS Sensitivity, FRS Making Activities Together, Commitment, FRS Organization of Norms, MRS Supervision, MRS Love and Trust, FRS Close Communication, MRS Fulfillment of Expectations, MRS Making Activities Together, FRS Sensitivity
Dependent Variable: Cyberbullying

It was found that there is a significant correlation between cyberbullying points of the subjects and the sub-dimensions of mother, father and peer relations, and that the regression model is statistically significant [$F_{(20; 1085)} = 8,01$ and $p < .001$]. R^2 value to explain cyberbullying level with mother, father, and peer relations predictors is calculated as 0,131 (Table 3). According to that, self-esteem, mother, father, and peer relations variables explain the cyberbullying level with a significance level of 0,001 with 11,4%.

Table 4. Coefficient Table of Self-esteem, Mother, Father, and Peer Relations Scale Points as Predictors of Cyberbullying in High School Students

Variable	B	β	Standard Deviation	p
Constant	30,662		2,425	0,001*
Self-esteem Total Points	0,521	0,073	0,288	0,076
MRS Close Communication	-0,033	-0,035	0,055	0,550
MRS Making Activities Together	-0,039	-0,033	0,088	0,644
MRS Sensitivity	-0,154	-0,094	0,160	0,332
MRS Love and Trust	0,243	0,125	0,156	0,127
MRS Supervision	0,142	0,075	0,104	0,183
MRS Organizations of Norms	0,057	0,019	0,126	0,657
MRS Fulfillment of Expectations	-0,436	-0,147	0,212	0,048*
FRS Close Communication	0,075	0,103	0,045	0,095
FRS Sensitivity	0,089	0,069	0,111	0,423
FRS Making Activities Together	-0,078	-0,069	0,085	0,354
FRS Organization of Norms	-0,134	-0,115	0,063	0,036*
FRS Love and Trust	-0,231	-0,118	0,188	0,227
FRS Supervision	-0,110	-0,069	0,107	0,333
FRS Fulfillment of Expectations	0,259	0,091	0,198	0,194
FRS Home Rules	0,060	0,020	0,137	0,646
Commitment	-0,068	-0,058	0,052	0,191
Trust and Identification	-0,098	-0,049	0,075	0,206
Self-disclosure	0,041	0,023	0,068	0,536
Loyalty	0,417	0,218	0,069	0,001*

** $p < 0,05$*
Dependent Variable: Cyberbullying

In Table 4, it is seen that Fulfillment of Expectation sub-dimension of Mother Relations Scale, Organization of Norms sub-dimension of Father Relations Scale, and Loyalty sub-dimension of Peer Relations Scale predict cyberbullying points of students with a significance level of 0,05. Looking at the *B* values we observe a negative correlation between Fulfillment of Expectations sub-dimension of MRS and Organization of Norms sub-dimension of FRS, and cyberbullying points of students; whereas we observe a positive correlation between Loyalty sub-dimension of Peer Relations Scale and cyberbullying points of students. Again *B* values indicate that Fulfillment of Expectations sub-dimension of MRS (-0,436) is the most significant variable in explaining cyberbullying levels of students. That is followed by Loyalty sub-dimension with (0,417) and Organization of Norms sub-dimension of FRS (-0,134). Based on these observations, the model is formulated as follows:

Cyberbullying=30,66-0,436*(MRS Fulfillment of Expectations)-0,134*(FRS Organization of Norms)+0,417*(Loyalty)

3.3 Findings Related to the Prediction of Cyber-victimization Points of High School Students

Table 5. Robust Regression Analysis of Self-esteem, Mother, Father, and Peer Relations Scale Points as Predictors of Cyber-victimization in High School Students

Model	R	R²	Corrected R²	ANOVA	
				F	p
1	0,367	0,134	0,118	8,26	0,000**

** statistically significant with p<0,001.

Predictor (Independent) Variable: (Constant), Loyalty, Self-esteem Total Points, FRS Home Rules, MRS Organization of Norms, Self-disclosure, MRS Close Communication, FRS Love and Trust, Trust and Identification, FRS Fulfillment of Expectations, FRS Supervision, MRS Sensitivity, FRS Making Activities Together, Commitment, FRS Organization of Norms, MRS Supervision, MRS Love and Trust, FRS Close Communication, MRS Fulfillment of Expectations, MRS Making Activities Together, FRS Sensitivity.
Dependent Variable: Cyber-victimization

It was found that there is a significant correlation between the cyber-victimization points of the subjects and self-esteem, mother, father and peer relations sub-dimensions, and that the regression model is statistically significant [$F_{(20; 1085)}$=8,26 and p<.001]. R^2 value to explain cyber-victimization level with self-esteem, mother, father, and peer relations predictors is calculated as 0,134 (Table 5). According to that, self-esteem, mother, father, and peer relations variables explain cyber-victimization levels with a significance level of 0,001 with 11,8%.

Table 6. Coefficient Table of Self-esteem, Mother, Father, and Peer Relations Scale Points as Predictors of Cyber-victimization in High School Students

Variable	B	β	Standard Deviation	p
Constant	33,892		1,898	0,001*
Self-esteem Total Points **	0,383	0,075	0,179	0,035*
MRS Close Communication	-0,005	-0,008	0,040	0,889
MRS Making Activities Together	-0,009	-0,011	0,056	0,866
MRS Sensitivity	0,087	0,074	0,097	0,359
MRS Love and Trust	-0,158	-0,114	0,100	0,106
MRS Supervision	0,114	0,084	0,065	0,089

MRS Organization of Norms	0,069	0,032	0,094	0,455
MRS Fulfillment of Expectations	-0,307	-0,145	0,143	0,037*
FRS Close Communication	0,046	0,088	0,033	0,166
FRS Sensitivity	-0,044	-0,048	0,080	0,564
FRS Making Activities Together	0,010	0,012	0,052	0,840
FRS Organization of Norms	-0,056	-0,067	0,041	0,162
FRS Love and Trust	-0,070	-0,050	0,106	0,495
FRS Supervision	-0,088	-0,076	0,059	0,135
FRS Fulfillment of Expectations	0,010	0,005	0,142	0,937
FRS Home Rules	-0,010	-0,004	0,090	0,923
Commitment	-0,046	-0,055	0,033	0,176
Trust and Identification	-0,140	-0,099	0,051	0,004*
Self-disclosure	0,099	0,077	0,046	0,023*
Loyalty	0,210	0,154	0,045	0,001*

*p<0,05

Dependent Variable: Cyber-victimization

** High points of Rosenberg Self-esteem Scale refer to low self-esteem.

In Table 6, it can be seen that Self-esteem Scale points, Fulfillment of Expectation sub-dimension of Mother Relations Scale, and Trust and Identification, Self-disclosure, and Loyalty sub-dimensions of Peer Relations Scale predict cyber-victimization points of students with a significance level of 0,05. Looking at the *B* values we observe a negative correlation between Self-esteem, Fulfillment of Expectations sub-dimension of MRS, Trust and Identification sub-dimension of Peer Relations Scale, and cyber-victimization points of students; whereas we observe a positive correlation between Self-disclosure and Loyalty sub-dimensions of Peer Relations Scale and cyber-victimization points of students. Again *B* values indicate that self-esteem (0,383) is the most significant variable in explaining cyber-victimization levels of students. That is followed by Fulfillment of Expectations sub-dimension of MRS with (-0,307), Loyalty (0,210); Trust and Identification (-0,140), and Self-disclosure (0,099) sub-dimensions of Peer Relations scale. Based on these observations, the model is formulated as follows:

Cyber-victimization=33,892-0,383*(Self-esteem)-0,307*(MRS *Fulfillment of Expectations*)-0,140*(Trust and Identification)+0,99*(Self-disclosure)+0,210*(Loyalty)
(Trust and Identification)+0,99(Self-disclosure)+0,210*(Loyalty)

4. Discussion

This study examined self-esteem, mother, father, and peer relations as predictors of cyberbullying and cyber-victimization. Following section gives a discussion of findings obtained from data analysis under the light of relevant literature.

4.1 A Discussion on Findings Related to Prediction of High School Students Cyberbullying Points

This study found that self-esteem is not a significant predictive element in cyberbullying points. In literature, there are studies that indicate low self-esteem increases cyberbullying behavior (Kowalski & Limber, 2013; Tanrıkulu, 2013), and high self-esteem increases cyberbullying behavior (Özel, 2013). Also Fanti and Henrich (2014) assert that bullies have law levels of self-esteem and high levels of narcissism. They state that those adolescents perform bullying to increase their self-value, rise their social status by resorting to attention-grabbing behavior, and protect their vulnerable self-

image. From these points of views, the indication self-esteem's not being a predictor of cyberbullying revealed by this study is not an unexpecting result considering this inconsistency in literature, and in order to better understand this correlation, other mediator variables (such as narcissism) must be taken into consideration.

In the cyberbullying model obtained in this study, it was found that Fulfillment of Expectations sub-dimension of Mother Relations Scale is the most significant predictive variable which has a negative correlation with cyberbullying. In this scale, fulfillment of mother's expectations measured with statements "I think I am fulfilling her expectations" and "I think I am a person she wants me to be" which refer to the adolescent's feeling of fulfillment of his/her mother's expectation. In this study, it was observed that cyberbullying points out the increase with lower levels of fulfillment of mother's expectations. Barber (1996) defines psychological control as the parental attempts of the child's attitudes, feelings, and thoughts. According to Barber, those attempts are socializations that are insensitive to the child's needs. In literature, researches show that there is a correlation between parental psychological control and externalizing problematic behavior such as aggression and traditional bullying (Barber, 1996; Bayraktar, 2009; Petit, Laird, Dodge, Bates & Criss, 2001). The findings of Kındap, Sayıl and Kumru (2008) that indicates, adolescent aggressive behavior increases especially with the increase of the perceived psychological control of the mother is implicitly consistent with the, findings of this study.

In the cyberbullying model obtained in this study, it was found that Organization of Norms sub-dimension of Father Relations Scale has a negative correlation with cyberbullying. In this scale, Organization of Norms was defined as determination of rules, limitations, and criteria related to the child's behavior, and of which activities the child would make, with whom to be friends, and at what time he/she will be back home. This study found that organization of norms by the father variable has a negative effect on cyberbullying. In other words, cyberbullying points rise with lower levels of father's organization of norms. Barber (1996) defines the behavioral control as an attempt to organize and supervise the child's behavior within the frame of domestic and societal norms by setting proper rules and limitations. It was found that behavioral control that supports the autonomy development of the adolescent, and provides guidance and supervision when necessary, has a negative correlation with negative behaviors such as aggression, crime, and traditional bullying (Petit et al., 2001; Simons-Morton, Chen, Hand & Haynie, 2008). It can be stated that the findings of this study support our finding that cyberbullying points out the increase with low levels of father's organization of norms with the aim of guidance and supervision.

In the cyberbullying model obtained in this study, it was found that Loyalty sub-dimension of Peer Relations Scale has a positive correlation with cyberbullying. In this scale, loyalty was defined as lying to cover a friend in trouble, and taking sides with friends even if they cause trouble to him/her. In this study, it was observed that cyberbullying points rise with the rise of loyalty. This finding is supported by the view in the literature that having friends supporting/performing cyberbullying increase cyberbullying within the context of peer group membership and influence (Cross et. al., 2015). This finding is also supported by the result of Sasson and Mesch's study (2014) indicating that the perception of risky online behavior supported by the peers, increases involvement in such behavior; and also by the findings of Hinduja and Patchin (2013) indicating that cyberbullies and their peers display similar behavior, and that there is a correlation between the perception of most of their peers are involved in cyberbullying, and cyberbullying itself. In their study, Eroğlu and Peker (2015) examined peer relations as a risk factor regarding cyberbullying statuses, and found that loyalty is a risk factor in all cyberbullying statuses (i.e. cyberbully, cybervictim, and cyber bully/victim). This finding supports this study's finding on the loyalty variable. In this study, it was also found that commitment, trust and identification, and self-disclosure variables of the Peer Relations Scale do not have a significant predictive element in cyberbullying. In literature, there are researches indicating that traditional bullies have low levels of commitment to their peers, they experience conflicts in peer relations, and they display low qualities

of friendship (Bayraktar, 2009), and that they are rejected by their peers (Boulton & Smith, 1994). It can be stated that our finding of commitment, trust and identification, and self-disclosure's not being predictive in peer relations of cyberbullies, is compatible with the findings of these researches.

4.2 A Discussion on Findings Related to Prediction of High School Students Cyber-victimization Points

In the cyber-victimization model obtained in this study, low levels of self-esteem points explain increase of cyber-victimization with a significant level. This finding is supported by the results of many researches in literature indicating that there is a correlation between low self-esteem and cyber-victimization (Brewer & Kerslake, 2015; Brighi et. al., 2012; Cenat et. al., 2014; Özel, 2013). It is stated that individuals with low self-esteem are seen as "easy targets" by bullies (Fanti & Henrich, 2014). With these findings in literature, it can be said that there is a correlation between low self-esteem and cyber-victimization; however, there is no clarity in whether law self-esteem is the cause or result of victimization.

In the cyber-victimization model obtained in this study, it was found that Fulfillment of Expectation sub-dimension of Mother Relations Scale has a negative correlation with cyber-victimization. In other words, it was observed that cyber-victimization points increase with low levels of fulfillment of mother's expectations. Considering that the adolescent not being able to fulfill his/her mother's expectations would be because of the mother having big or non-realistic expectations from the adolescent, it could be thought that the mother controls and inflict pressure on the adolescent with her expectations. Traditional victimization and parental styles research gives findings such as especially victimized males have closer relations with their mothers, and their mother are controlling and restraining persons (Batsche & Knoff, 1994); low levels of support of autonomy in such parents (Stevens, De Bourdeaudhuij & Van Oost, 2002), and high levels of parental control (Şirvanlı Özen, 2006). It can be deduced that these conclusions are compatible with the finding of this study.

In the cyber-victimization model obtained in this study, it was found that Loyalty and Self-disclosure sub-dimensions of Peer Relations Scale have a positive correlation with cyber-victimization, whereas Trust and Identification sub-dimension has a negative correlation with cyber-victimization. This study found that cyber-victimization points out the increase with high levels of loyalty. Considered in the context of functions of a peer group, the group membership provides psychosocial needs such as sense of belonging, being cared, and feeling safe; facilitates protection against enemies outside, and helps the creation of a social identity (Kağıtçıbaşı, 2004). Individuals are open to influences of thoughts and behaviors from the groups they belong to. Asch's experiment (1955) shows that individuals have a tendency to appropriate social norms of the group they are a part of. Research indicates that individuals keep acting according to desires of their groups even sometimes those ways of acting are not in accordance with their views (cited by Taylor, Peplau, & Sears, 2007). Similarly, some research found that normative expectations related to cyberbullying and perceived social norms effect involvement in cyberbullying (Cross et. al., 2015; Sasson & Mesch, 2014). On the other hand, the need of pertaining to a group comes with a strong fear of exclusion. Considering that today it is a must for adolescents to sustain their relations via information and communication technologies, it can be stated that loyalty would be an important element in adolescent's inclusion in different peer groups, sustain his/her group membership, and not being excluded from the group, which would lead to increase in cyber-victimization.

In the cyberbullying and cyber-victimization models obtained in this study, mother and peer relations are found to be predictive; also, father relations is found to be predictive in cyberbullying, and self-esteem is found to be predictive in cyber-victimization. Based on findings of this study, it can be stated that peer relations has a higher predictive value in understanding cyberbullying and cyber-victimization compared to mother, father relations, and self-esteem. Comparing this finding

with other findings of the relevant literature, it can be said that it supports the view that peer relations is a powerful socialization means in adolescence that fulfill support, intimacy, and sense of belonging needs of the adolescent (Harris, 1995). Moreover, Sasson and Mesch (2014), in their study on the effect of adolescent-parent and adolescent/peer relations on risky online behavior, found that peer relations are more influential in such behavior. It can be thought that this result is consistent with the finding of this study.

5. Conclusion and Final Remarks

Two models obtained in this study revealed that mother and peer relations are predictive in both cyberbullying and cyber-victimization, whereas father relations are predictive only in cyberbullying, and self-esteem is predictive only in cyber-victimization. Based on these results, it can be stated that in cyberbullying prevention and intervention, it is important to educate families on supporting and supervising the adolescent in adolescent-parent relations. Participation of fathers to this education is essential; it would be important to teach that the father, beyond being an authority figure, would be a rather supportive and guiding figure in various issues. Such an approach of intervention in the father's function in family would have a regulatory effect in adolescent-mother relations. Adolescent education on topics such as friend qualities in peer relations, and ways of standing against friend pressure would lead good results in interventions. Moreover, based on the finding that loyalty has a positive predictive effect in cyberbullying and cyber-victimization, awareness of adolescents may be raised towards not supporting cyberbullying behavior in groups, and acting together to protect the victim. Peer-to-peer activities can be organized in cyberbullying interventions. Based on the finding that self-esteem has a negative predictive effect on cyber-victimization, it would be a good idea to perform self-esteem support activities with cyber victimized adolescents.

This study has some limitations; points obtained in this study did not display a normality distribution. Groups displaying a normal distribution may give different results. Also, considering that parent-adolescent and peer-adolescent relations are multi-dimensional and multi-faceted, it can be stated that use of more advanced and complex statistical methods and different research patterns would provide results that better explain the phenomenon. Finally, use of more recent scales in the analysis of these relations would lead to different results.

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