



## **Prediction Cyber Bullying with Respect to Depression, Anxiety and Gender Variables**

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**Abstract:** Cyber bullying has been occurred as a new kind of bullying among students as a result of misusing technological developments. Cyber bullying has serious negative effects in psychological, emotional and social areas. The findings of the researches states that suffering from bullying behaviors causes physical and mental illnesses after a while and in case these bullying behaviors continue for a long time and the victim cannot get support from the environment, this causes these illnesses to be felt more severely. The aim of this study was to investigate the levels of the students' being cyber victim with respect to depression, anxiety and gender. The sample of this study was composed of the 261 students attending two different high schools in the second term of 2009-2010 education year in Osmaniye city center. 22 of these students were excluded from the scope of the research since their scales were not completely filled. In conclusion, 239 students were included in the study since their scales were found practicable. Three means were used to collect data in the research. These are virtual victim questionnaire, permanent anxiety inventory and Beck depression inventory. Results indicated that there were positive significant correlations among cyber victim, depression and anxiety. Also, there were negative and low level correlations between cyber victim and gender. This finding showed that girls were exposed to cyber bullying more than boys. With the rapid increase of technological improvements and use of technological means by the students more commonly, this problem which is experienced in schools leads to the thought that it will become a more important issue in the following years. It was found that the students included in the bullying incidents (both as bully and victim) are more inclined to psychological problems than the ones not involved. Since cyber bullying incidents

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are done using technological means, they will not be limited to a specific area (school, schoolyard, class, roundtrip to school). Considering the possibility that such incidents will happen also at home, parents should undertake important duties and responsibilities for preventive actions. For this purpose, school staff should raise awareness regarding the use of technology in not only students but also the parents.

*Keywords:* Cyber Victim Level, Depression, Anxiety, Gender.

### **Introduction**

Recent developments in technology and more common use of technology by the young have allowed the students to perform bullying behaviors, which they conduct at school, by using the technology, too. With this aspect, a new kind of bullying type, called “cyber bullying”, has been observed besides other bullying types experienced among students (Ayas and Horzum, 2010). Chisholm (2006) defined cyber bullying as threatening, insulting, humiliating people by using electronic media such as mobile phones, e-mail and websites. Patchin and Hinduja (2006) defined cyber bullying as sending offending and harming messages to another person by using internet-based communication means. Cyber bullying can be defined as hurting other people in a conscious and deliberate way by using internet and other digital technologies (Storm & Storm, 2005). When the definitions are reviewed, it can be seen that cyber bullying incidents are done by using electronic means.

Cyber bullies give harm their victims by using two important electronic media. One of them is personal computers used by cyber bullies. Bullies send harming and threatening mails to their victims or design insulting web pages about their victims by their personal computers. Another electronic means is the mobile phones with which they send the messages harassing their victims (Patchin & Hinduja, 2006). Internet, mobile phones and accordingly e-mail services (Yahoo, Hotmail, Gmail, etc) are effective in increasing cyber bullying (Internet Bullies, 2006). Since there is no physical contact between the bully and the victim such as face to face bullying, these incidents are difficult to detect (Hinduja & Patchin, 2006). Therefore, few of the teachers, directors and psychological consultants who are aware of the bullying in their schools recognize the cyber bullying realized by using electronic means (Beran & Li, 2005).

Internet and mobile phones which are used by the cyber bullies to hurt their victims have become the most frequently used technologies in the present information and technology age. Such that, 24% of the world population, 74% of America, 49% of Europe and 35% of Turkey use internet according to data of 2009 (IWS, 2009). It is known that 4.6 billion people use mobile phones in the world and every 67 people out of 100 in the world have mobile phones (UIT, 2009a).

In the researches carried out in various countries on the prevalence of the cyber bullying with technological means, cyber bullying incidents in schools were determined to be a problem which is experienced in high rates.

According to the research findings performed by Sourander et al. (2010), it was determined that 4.8% of the study group are the victims of cyber bullying, 7.4% do cyber bullying and 5.4% both do cyber bullying and suffer from cyber bullying. In the study by Carroll (2008), it was established that 69% of the participants take part as either cyber bully or cyber victim in cyber bullying incidents. According to a study by Li (2006), it was determined that 62% of the participants do cyber bullying to others one or three times in a week and 38% more than three times. In a research performed by Kowalski and Limber (2007) with secondary school students in the USA, 25% of the girls and 11% of the boys stated that they were exposed to cyber bullying two months before they participated in the research. Cyber bullying is not an issue experienced among only primary or secondary school students. In the study carried out by Kowalski and Witte (2006) with university students, they determined that 11% of the participating students expose to cyber bullying and 3% do cyber bullying. When different studies in different countries are reviewed, it is seen that rates of cyber bullies and victim students differ. Although these rates are different, cyber bullying has to be evaluated as a serious problem.

Studies on cyber bullying in Turkey have been recently carried out. In their studies, Erdur-Baker and Kavsut (2007) stated that the rate of cyber bullying has reached to 28% and victim rate to 30%. In a study they carried out, Topçu, Erdur-Baker and Çapa-Aydın (2008) compared students attending private and state schools with respect to internet use frequency and monthly income based on the cyber bullying experience. The participants of the research composed individuals from high, middle and low socio-economic levels. In the study, the

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cyber bullying rate was found to be 35% and rates of girls and boys being involved in cyber bullying incidents were found to be equal. In a study on the relation between traditional bullying and cyber bullying, Erdur-Baker (2010) determined that 32% of the participants suffer from cyber and traditional bullying and 26% do bullying to others in cyber and physical environments. In a research carried out on cyber bullying in Istanbul, it was found that 35.7% of the students display cyber bullying behaviors and 5.9% of them are victims of cyber bullying (Arıcağ et al., 2008).

In a study performed by Dilmaç (2009) with university students, it was found that 22.5% of the students do cyber bullying and 55.3% of them suffer from cyber bullying at least one time in their lives. In the research it was found that men exhibit more cyber bullying behaviors than women. In a study on the students attending second level of primary school by Aydoğın, Dilmaç and Deniz (2009), it was determined that 32.6% of the students suffer from cyber bullying at least once in their lives and 22.5% of them do cyber bullying once or more. When the studies in Turkey are reviewed, it is seen that cyber bullying incidents are in an important levels.

When the studies carried out to determine whether there is a significant difference between cyber bullying and gender, different results are discovered. While it was determined that men do more cyber bullying than women in some researches (Li, 2006; Vandebosh et al., 2006), in some studies it appears that there is not a significant difference between men and women (Finkelhar, Mitchel & Wolak, 2000; Patchin & Hinduja, 2006; Slonje & Smith, 2008; Smith et al.; 2005 Yabarra & Mitchel, 2004; Williams & Guarra, 2007). Li (2006) stated that there is no difference between female and male students with regards to being a victim of cyber bullying behaviors; however, male students do more cyber bullying. In some studies, it was found that girls do more cyber bullying and expose to these incidents more (CNH, 2002; Dehue, Bolman & Völlink, 2008; Keith & Martin, 2005; Kowalski & Limber, 2007; Mark, 2009; Nelson, 2003; Simit et al.; 2006; Stys, 2004). Even though there are studies in Turkey stating that male students do more cyber bullying and expose to more cyber bullying than girl students (Arıcağ et al., 2008; Dilmaç, 2009; Erdur-Baker & Kavrut, 2007), in a study by Topçu, Erdur-Baker and Çapa-Aydın (2008) it was determined that the rates of girl and boy students being involved in cyber bullying are equal.

Cyber bullying incidents affect the school environment in a negative way (Williams & Guera, 2007). In a study carried out by Ybarra, Diener- West and Leaf (2007) they stated that cyber bullying incidents negative situations such as emotional problems, carrying gun in schools. Cyber bullying may cause the students to quit school or commit suicide (Kirby, 2008). In a report prepared by Ybarra, Diener-West & Leaf (2007), it is stated that the young who were exposed to online cyber bullying more than once skip school. One of the students who were exposed to cyber bullying this way skipped school for eight days and another one came to school with gun.

Cyber bullying has serious negative effects in psychological, emotional and social areas. The findings of the researches states that suffering from bullying behaviors causes physical and mental illnesses after a while and in case these bullying behaviors continue for a long time and the victim cannot get support from the environment, this causes these illnesses to be felt more severely (Rigby, 2003). When the studies on the psychological effects of cyber bullying in the victims are reviewed, it is seen that the victims experience similar psychological effects. In a study by Hinduja and Patchin (2006) they stated that problems such as sadness, incapability, depression, family and peer problems and anxiety are experienced in victims who are exposed to cyber bullying incidents; similarly Hawker and Boulton (2000) stated that psychological effects such as depression, loneliness, low socializing, low self esteem, anxiety are seen in victims.

Ybarra (2004) stated that individuals who experienced major depression suffer from cyber bullying three times more when compared to the ones who experienced mild depression or who have not experienced depression. In a study by Nishina, Juvonen and Witkow (2005), it was stated that paranoid behaviors were seen in victims besides psychological symptoms. There are other studies giving similar results. In individuals experiencing cyber bullying; low esteem, failure in school, anger, depression, school absence, school violence, suicide and stress are seen (Bargh & Mckenna,2004; Ybarra & Mishell,2004). Hawker and Bouton (2000) explained that people who suffered from cyber bullying experience depression, loneliness, low socialization, low self esteem and anxiety.

Nishina Juvanen and Witkow (2005) stated in their study that people who were exposed to cyber bullying experience depression, anxiety, loneliness and paranoid opinions.

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Perren, Dooley, Shaw and Cross (2010) explained that the people who suffered from cyber bullying exhibit more depressive symptoms than the ones who suffered from traditional bullying. When the studies are reviewed, psychological effects such as depression, loneliness, low socialization, low self esteem, sadness, anger, fear, anxiety, paranoia and suicide thoughts are seen in the individuals who suffer from cyber bullying.

Kowalski and Limber (2007) found that there is a relation between cyber bullying and anxiety and self esteem. In their study, it was found that the cyber bullying victims lose their self esteem. Anxiety points of the victims and cyber bullies/victims are higher than the cyber bullies. Self esteem of the cyber victims and cyber bully/victims are lower than the cyber bullies. In a study by Sourander et al. (2010), the victims of cyber bullying experience emotional and peer problems, suffer from headache and stomachache and have sleep problems. Besides psychological negativities of the cyber bullying, it also causes the victims to use more drugs such as alcohol, marijuana, heroin and cocaine (Yrbarra, Espelage & Mitcheel, 2007). As a result of these negative incidents experienced by the victims of cyber bullying, immune systems of the victims are affected by these incidents negatively (Hazler, Carney & Granger, 2006).

In a study, Kowalski and Wittes (2006) asked the victims of cyber bullying how they feel themselves after being exposed to cyber bullying. One of the victims stated that he/she felt himself/herself angry, sad, depressed, hurt, stressed and in complex feelings; another one stated that he/she felt himself/herself miserable, small, very alone and helpless; another victim stated that he/she headed towards far east sports and found himself/herself fighting with bullies. A friend of one of the participants explained that he/she was mostly depressed and in suicidal thoughts. Similarly when the cyber bullies are asked how they feel after they do such behaviors, one of the participants stated that he/she felt himself/herself happy, pleased, aggressive and resentful, and they did such behaviors because the people against whom he/she did such behaviors deserve them.

As a result of the foreign studies, the victims suffering from cyber bullying incidents were found to be negatively affected. In the studies carried out in Turkey, it was seen that the cyber bullying is limited with its extensity. That's why, in this study it is aimed to

examine to what extent depression, anxiety and gender are related with each other in predicting the exposure levels of secondary school students to cyber bullying.

## **Method**

### **Model**

The research was planned and carried out in accordance with scanning model. In the scanning method; variables belonging to unit and situation such as dealt incident and group are attempted to be separately described. In this model, instant situation determinations can be identified (Karasar, 2004: 79). Since it was aimed to indicate whether the levels of being cyber bullying victim regarding an unbiased selected group differ or not according to the variables belonging to these groups, scanning model has been chosen. The research was carried out in the relational scanning model of the scanning methods.

### **Study Group**

The sample of this study was composed of the 261 students attending two different high schools in the second term of 2009-2010 education year in Osmaniye city center. 22 of these students were excluded from the scope of the research since their scales were not completely filled. In conclusion, 239 students were included in the study since their scales were found practicable. There are 141 (59%) girl and 98 (41%) boy students in the study. 65 (27.2%) of the students are ninth grade, 110 (46%) are tenth grade and 64 (26.8%) are eleventh grade. Since the 12th grade students who were going to take the LYS exam did not come to school as they were preparing for the exam during the period when the research data were collected, they were not included in the sample.

### **Instruments**

Three means were used to collect data in the research. These are virtual victim questionnaire, permanent anxiety inventory and Beck depression inventory. Besides these scales, an information collection form composing of two questions (gender and grade) was used to collect personal information.

In the research, "Cyber Bully/Victim Questionnaire" designed by Ayas and Horzum (2010) was used to determine the levels of exposure of the students to cyber bullying. Cyber

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Bully/Victim questionnaire composes of two parallel scales which are called as "Cyber Bully Questionnaire" and "Cyber Victim Questionnaire" and which include asking same points in a different way. The students are expected to answer how often they do the words and actions included in the cyber bully questionnaire and how often they suffer from these words and actions included in the victim questionnaire. Since this research is aimed to determine the exposure levels of the students to cyber bullying, only cyber victim dimension was used. As the original of the scale was developed for students attending primary school, validity and reliability studies were carried out in order to use the scale in secondary school students. The data collected for the research was used in the validity and reliability studies carried out for the scale. For the structure validity in the validity studies of the scale, firstly confirmatory factor analysis was performed.

Cyber victim dimension of the original scale has a structure composing of 19 points and 3 factors. Since two points (points 1 and 9) did not work in the confirmatory factor analysis, it was decided to exclude them from the scale. After these two points were excluded, 3-factor structure of the original scale without these points was tested with confirmatory factor analysis (CFA). As a result of the CFA, fit index was found as  $\chi^2=300.12$  (sd=113,  $p=.0000$ ),  $\chi^2/sd=2.66$ , RMSEA=0.083, GFI=0.87, AGFI=0.83, CFI=0.93, NFI=0.89 and NNFI=0.92.

In the evaluation of the concordance of the models established with confirmative factor analysis to the data, the evaluation is carried out by taking fit indexes such as  $\chi^2$ , RMSEA, GFI, AGFI, CFI, NNFI into consideration. In case that  $\chi^2/sd$  rate is 5 or less, model-data concordance is accepted to be very good. RMSEA value close to zero and close to 0.08 can be accepted for data concordance. Also the fact that CFI and AGFI indexes are higher than 0.90 shows that model-data concordance is perfect. 0.85 and higher for CFI and 0.80 and higher for AGFI are accepted to be sufficient for model-data concordance. 0.90 and higher for CFI and NNFI shows the perfection of model-data concordance (Anderson and Gerbing, 1984; Sümer, 2000).

When the fit indexes of the scale are reviewed, they appear to be in an acceptable level. It can be stated that the structure validity of the scale is provided based on these findings. For the reliability studies of the scale, internal consistency (Cronbach-alpha) coefficients were calculated. Reliability coefficient of the scale's victim dimension was found



to be .85. This value shows that the scale is sufficient for reliability level. There are 17 points in the scale. The lowest score obtained is 17 and highest one is 85. The fact that the scores are high indicates that the level of being a cyber victim increases.

The second scale used in the research is State Trait anxiety inventory. To determine the anxiety levels of the students, only "Trait Anxiety Inventory" (T.A.I) was used from the "State-Trait Anxiety (S.T.A.I) Inventory" which was developed by Spielger and whose validity-reliability study was carried out by Öner and LeComte (1985).

The inventory composes of 20 points. A score between 20 and 80 can be obtained from the inventory. Higher score indicates high anxiety level and lower score indicates low anxiety level.

The third scale used in the research is Beck Depression Inventory (BDI). It was developed by Beck et al. (1961) and its validity and reliability studies were carried out by Hisli (1989) in Turkey. It measures the physical, emotional, cognitive and motivational symptoms experienced in depression. The scale aims to determine the degree of the depression symptoms objectively. There are 4 choices in each of the twenty one point and each point is given a score between 0-3. Depression score is detected by adding these points. Highness of total score shows the severity of the depression.

### **Collection and Analysis of the Data**

Measuring means were handed to the students and although information on the situation being a cyber victim and bully was present on the preliminary information, it was explained to the students by the researcher with examples. Measuring means was copied and stapled in a way that each student receives it in a different order. For the analysis of the data, firstly the scores obtained from cyber victim, depression and anxiety scales were checked to see if they meet the hypothesis of the multiple linear regression analysis. After meeting the hypothesis, standard (enter) approach was preferred from the multiple linear regression methods. Since standard approach puts forward the effect of all variables on the dependent variable, it was preferred. SPSS 13.0 package program was used in the data analysis.

### **Findings**

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Results of regression analysis regarding the prediction of levels of suffering from cyber bullying according to the depression, anxiety and gender variables are given in Table 1.

**Table 1.** Results of multiple regression analysis regarding prediction of levels of suffering from cyber bullying.

Variable	B	Standard error	B	T	p	Dual r	Partial r
Constant	9.37	1.90	-	4.95	.00	-	-
Depression	.13	.04	.24	3.19	.00	.35	.21
Anxiety	.15	.05	.22	2.95	.00	.33	.19
gender	-1.86	.63	-.18	-2.96	.00	-.13	-.19

R= .42, R<sup>2</sup>= .18, F<sub>(3-235)</sub>= 16.99, p.= .00

In the analysis results of the Table 1, firstly dual and partial correlation results between the variable of level of suffering from cyber bullying and variables which will predict the dependent variable will be examined.

It was found that there is a positive and mid level dual relation ( $r=.35$ ) between levels of suffering from cyber bullying and depression; however when the anxiety and gender variables were checked, the partial relation between the two variables, it was seen that it was calculated as a positive and low relation ( $r=.21$ )

It was found that there is a positive and mid level dual relation ( $r=.33$ ) between level of suffering from cyber bullying and anxiety variable; however when the depression and gender variables were checked, the partial relation between the two variables, it was seen that it was calculated as a positive and low relation ( $r=.19$ )

It was found that there is a negative and low level dual relation ( $r=-.13$ ) between level of suffering from cyber bullying and gender variable; however when the depression and

anxiety variables were checked, the partial relation between the two variables, it was seen that it was calculated as a negative and low relation ( $r=-.19$ )

When the depression, anxiety and gender variables are considered together, there appears a positive, mid level and significant relation with the level of suffering from cyber bullying ( $R= .42, p< .01$ ). When depression, anxiety and gender variables are considered together, the level of suffering from cyber bullying explains 18% of the total variant. According to standardized regression coefficient ( $\beta$ ), relative importance order over the level of suffering from cyber bullying is depression, anxiety and gender. When the results of t-test regarding the significance of the regression coefficients, it is seen that depression, anxiety and gender variables are a significant predictor over the level of suffering from cyber bullying.

According to the regression analysis, regression equality for depression, anxiety and gender regarding the level of suffering from cyber bullying was found as follows:

$$CYBER\ VICTIM = 9.37 + 0.13DEPRESSION + 0.15ANXIETY - 1.86\ GENDER.$$

### **Discussion**

With the misuse of technology by the students, incidents of being a cyber bully/victim in schools have become an important problem. Although the studies on cyber bullies and victims started in 2007, it is seen that it is a problem which should not be underestimated. With the rapid increase of technological improvements and use of technological means by the students more commonly, this problem which is experienced in schools leads to the thought that it will become a more important issue in the following years. It was found that the students included in the bullying incidents (both as bully and victim) are more inclined to psychological problems than the ones not involved (Kumpulainen, Rasanen & Puura, 2001). It is seen from the researched that the ones who suffer from bullying behaviors are affected more negatively by these incidents (Glaso, Matthiesen, Nielsen and Einarsen; 2007; Mynard, Joseph and Alexander, 2000; Nishina, Juvonen and Witkow, 2005; Patchin and Hinduja, 2006; Ybarra and Mishell, 2004).

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In this research, it was found that there is a positive and mid level relation between the level of suffering from cyber bullying and depression and anxiety. This findings are consistent with the findings of (Carroll, 2008; Catherine, 2009; Bargh and Mckenna, 2004; Benan and Li, 2005, Hawker and Boulton, 2000; Nishina, Juvonen and Witkow, 2005; Patchin and Hinduja, 2006; Ybarra and Mishell, 2004; Ybarra, 2004). The negative thoughts developed as a result of not being able to share these incidents experienced by the victims of cyber bullying, not being able to feel secure (Borg 1998) and losing their self confidence (Rigby, 2003) can be effective in exhibiting anxiety and psychological symptoms (Kowalski & Wittes, 2006).

When the levels of suffering from cyber bullying are compared according to the gender, it was found that female students participating in the research are more exposed to cyber bullying than the male students. While this finding is consistent with the findings of the studies of CNH, (2002); Dehue, Bolman and Völlink, (2008); Keith and Martin, (2005); Kowalski and Limber, (2007); Mark, (2009); Nelson, (2003); Simit et al. (2006); Stys (2004); it is different from the ones of Arıcak et al., (2008); Dilmaç, (2009); Erdur-Baker and Kavsut, (2007); Li, (2006); Vandebosh et al. (2006). Cyber bullying are found to be similar with the “relational bullying” type of the traditional bullying (Keith and Martin, 2005). Relational bullying includes actions such as revealing gossip and negative rumor about someone. When the literature is reviewed, girls do such actions and suffer from these more than boys (Keith and Martin, 2005). In this review, this could be effective in the fact that girls suffer from cyber bullying more than boys. When the researches on the suffering from cyber bullying and gender are reviewed, it is found that there are different results. Therefore, to be able to make comments on suffering from cyber bullying and gender, more researches need to be done.

When the negative effects of being the victim of cyber bullying on the individuals are considered, the school staff and the parents should take the subject seriously and be sensitive to these cyber bullying incidents in schools to prevent these (Yazar, 2008). Being the victim of cyber bullying should not be evaluated as an issue which does not only concern the victims of cyber bullying but also all students. Not developing solution offers by ignoring this issue will mean to me a mere spectator to the future troubles. To be able to fight with cyber bullying/victim incidents, the school staff and parents should be aware of its psychological

effects on the students. This indicates that cyber bullying incidents affect its victims in a negative way and necessary preventive actions should be taken in order to avoid its further negative effects. Planning and applying preventive programs for eliminating cyber bullying incidents are only possible by revealing the present situation with scientific perspectives and researches.

Since cyber bullying incidents are done using technological means, they will not be limited to a specific area (school, schoolyard, class, roundtrip to school). Considering the possibility that such incidents will happen also at home, parents should undertake important duties and responsibilities for preventive actions. For this purpose, school staff should raise awareness regarding the use of technology in not only students but also the parents.

The fact that cyber bullying/victim incidents affect the ones suffering from them in a negative way psychologically can be seen in the literature review and a result of this research. That's why, psychological consultants in school should detect such victims and provide psychological support to them.

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