



## Cyber victim and bullying scale: A study of validity and reliability

Bayram Çetin<sup>a,\*</sup>, Erkan Yaman<sup>b</sup>, Adem Peker<sup>b</sup>

<sup>a</sup> Gaziantep University, Faculty of Education, University Boulevard, Gaziantep, Turkey

<sup>b</sup> Sakarya University, Faculty of Education, Sakarya, Turkey

### ARTICLE INFO

#### Article history:

Received 14 August 2010

Received in revised form

26 June 2011

Accepted 27 June 2011

#### Keywords:

Cyber victimization

Cyber bullying

Cyber victim and bullying scale

### ABSTRACT

The purpose of this study is to develop a reliable and valid scale, which determines cyber victimization and bullying behaviors of high school students. Research group consisted of 404 students (250 male, 154 female) in Sakarya, in 2009–2010 academic years. In the study sample, mean age is 16.68. Content validity and face validity of the scale was provided via field specialists' judgment. Confirmatory and exploratory factor analyses were performed for investigation of the factor structure of the scale. As a result of principal component analysis of cyber victim subscale three factors emerged which accounted for the 46.38% of the total variance. Also for cyber bullying subscale, same three factors emerged accounting for the 49.18% of the total variance. Scales with 22 items under 3 factors were tested with confirmatory factor analysis for each victim and bullying variables. Three factors were named as cyber verbal bullying, hiding identity and cyber forgery. Three factors model of scales were found theoretically and statistically fitted after confirmatory factor analysis. For criterion related validity the correlation between cyber victim and bullying scale and Aggression Scale was calculated as .27 and .36, respectively. The internal consistency coefficients calculated for reliability. Cyber victim and bullying scales' internal consistency coefficients were .89 and split-half coefficients were .79. for both scales. Test-retest reliability for cyber victim .85, for cyber bullying respectively .90 was found. These results demonstrate that the Cyber Victim and Bullying Scale' is a valid and reliable instrument.

© 2011 Elsevier Ltd. All rights reserved.

### 1. Introduction

Recent developments in technology used by youngsters are increasingly creating environments in which students can exhibit bullying behaviors in schools via electronic devices. In this sense, a new kind of bullying called "cyber bullying" is being observed among students in schools (Ayas & Horzum, 2010).

Cyber bullying is defined as malicious and repeated use of information and communication technologies by an individual or a group in order to threaten others (Belsey, 2007). Willard (2007) describes it as sending threatening messages to a victim, or using digital technologies in a way that will lead to psychological and social problems for him/her. According to Shariff and Gouin (2005), cyber bullying is a type of psychological bullying by means of such electronic devices as mobile phones, blogs, web sites and chat rooms. Lacey (2007) considers cyber bullying as a kind of bullying exhibited via electronic communication devices, and describes it as a form of social aggression.

Although some researchers consider cyber bullying to be an "extension of traditional bullying in schools", cyber bullying differs in some important and worrying ways from traditional bullying. Cyber bullying is largely anonymous (Belsey, 2007; Shariff & Gouin, 2005; Slonje & Smith, 2008; Soutworth, Finn, Dawson, Fraser, & Tucker, 2007). While in traditional bullying the bully and the victim usually know each other, in cyber bullying, the bully knows who the victim is, but the victim often has no idea who is doing the bullying. Furthermore, in traditional bullying, third party observers know who is doing the bullying. In cyberspace, however the cyberbully can maintain his/her anonymity, both to the victim, and to outside observers (Kowalski, Limber, & Agatston, 2008). In cyber bullying, cyberbullies can communicate their hurtful messages to a very wide audience with remarkable speed (Belsey, 2007; Slonje & Smith, 2008). In contrast, traditional bullying is often limited to a small group of people. Needless to say, this characteristic of cyber bullying behavior makes it extremely difficult to control or to deal with. In addition, cyber bullying is not restricted to the school day, but can be experienced at any time

\* Corresponding author. Tel.: +90 2646141033; fax: +90 2646141034.  
E-mail address: [bctin27@gmail.com](mailto:bctin27@gmail.com) (B. Çetin).

would appear to the cyberbully wishes. The fact that cyber bullying can occur at any time of the day or night heighten children's vulnerability (Kowalski & Limber, 2007). Cyber bullying extends its reach far beyond schools and this can mean that there is no safe haven for children, not even in their home (Willard, 2007).

Cyber bullying behaviors are exhibited in different ways through contact via the Internet or on mobile phones. Bamford (2004) maintains that the use of swear words (indicating rage), insults, jokes, (mobility) and fake names are techniques commonly used by cyber bullies. Lacey (2007) points out that the most common forms of cyber bullying among students are found in instant messaging, teasing, spreading rumors, humiliating and making physical threats. Ponsford (2007) found that female students practice cyber bullying mostly by disclosing the secrets which they have been told, gossiping about individuals in the virtual environment, attacking the personality or sexual identity of the individual or labeling people as unreliable. Being able to hide one's identity in cyber bullying enables the cyberbully to disturb or frighten the victim and make him feel desperate. The cyberbully feels free not to conform with the social norms which require people to behave in specific ways, and so permits him/her to display aggressive behavior at any level s/he wishes (Badiuk, 2006; Patchin & Hinduja, 2006). In addition, Raskauskas and Stoltz (2007) maintain that it is very easy for the bully to hide his identity in cyber bullying, thus increasing the traumatic effects on the victims. The unknown identity of the bully in cyber bullying results in an imbalance of power between the victim and the bully, and renders the effects of cyber bullying more destructive than those of traditional school bullying. Cyber bullies may choose to broadcast videos about the people they are bullying by displaying their physical characteristics in a humiliating manner in order to attract the attention of other people (Hinduja & Patchin, 2009). Shariff (2008) argues that the fact that information and communication technologies enable people to assume the identity of another person by creating fake accounts renders these technologies attractive for bullies.

A review of the studies into cyber bullying suggests that it is quite a common problem in schools. In their studies, Noret and Rivers (2006) found that 7% of the students ranging in age from 11 to 15 had received at least one disgusting or threatening e-mail. A similar study conducted by Raskauskas and Stoltz (2007) discovered that 49% of the students ranging in age from 13 to 18 were electronic victims, while 21% of them were actual bullies. In another study of children under 18, Patchin and Hinduja (2006) reported that 11% of them had exhibited online bullying behaviors, that 29% of them were online victims, and that 47% of them had witnessed online bullying. In her study, Li (2007) found that one out of three adolescents was a cyber victim and one out of five adolescents was a cyber bully. Half the students reported hearing or being informed of a cyber bullying experience.

Wolak, Mitchell, and Finkelhor (2007) observed that 9% of the youngsters were exposed to cyber bullying, and that 57% and 43% respectively of these victims were exposed to bullying online by their fellows or by other people they did not know. Ybarra, West, & Leaf (2007) reported that 64% of the youngsters fell victim to online bullying. Beran and Li (2005) revealed that the majority of the students had heard about cyber harm, that one fifth of them had been exposed to cyber bullying several times, and that 3% of them exhibited cyber bullying behaviors.

Several studies claimed that cyber bullying leads to aggression (Aricak, 2009; Beran & Li, 2005; Dilmaç, 2009; Harman, Hansen, Cochran, & Lindsey, 2005; Ponsford, 2007; Willard, 2007; Ybarra & Mitchell, 2007; Ybarra, Espelage, & Mitchell, 2007; Ybarra, Mitchell, Wolak, & Finkelhor, 2006). In this context, cyber bullying should be classified particularly as proactive and non-physical aggression because it is a *deliberate* attempt to inflict direct or indirect harm on peers through manipulation and damaging peer relationships. As claimed by Berger (2007), Calvete, Orue, Estevez, Villardon, & Padila (2010) found that cyber bullying was related to the use of proactive aggression which is carried out coldly and purposely.

Researchers have claimed that females engage in cyber bullying more than males because cyber bullying is considered as a relational type of bullying which is mostly done by girls (Keith & Martin, 2005). However, researchers in Turkey (Aricak et al., 2008; Dilmaç, 2009; Erdur-Baker, 2010; Erdur-Baker & Kavut, 2007) challenge the claim that girls are more likely to engage in cyber bullying. Some speculations can be made with regard to gender roles in Turkey. Girls in Turkey are brought up under closer supervision, and are taught to be more self-conscious and more emphatic. Also, adolescent boys who behave in an aggressive manner (on the internet) gain popularity among their peers. Finally, it can be suggested that the supremacy of masculinity in Turkish culture may require aggression in order to attain greater social acceptance and higher self-esteem among young males.

In Turkey, Aricak et al. (2008) discovered that 35.7% of the students exhibited cyber bullying behaviors, that 23.8% of them were both cyber bullies and victims, that 5.9% of them were only cyber victims, and that male students were involved in a greater number of cyber bullying behaviors than female ones. Moreover, the study concluded that 25% of those exposed to cyber bullying had told their friends and families about their experience.

In another similar study, Topcu (2008) reported that 47.6% of high school students had exhibited cyber bullying behaviors. A further study conducted by Aricak (2009) found that 19.7% of the students had exhibited cyber bullying behaviors at least once, whereas 54.4% of them had fallen victim to it at least once. In Dilmaç's (2009) study, it was observed that 22.5% of university students had exhibited cyber bullying behaviors at least once in their lives whereas 55.3% of them had fallen victim to it at least once. In their studies of primary school students, Aydogan, Dilmaç, & Deniz (2009) found that 22.5% of the students had exhibited cyber bullying behaviors one or more times, that 32.6% of them were exposed to it once or more times, and that 17.2% of them had posed as someone else via the Internet or on mobile phones.

Another significant point addressed in the research on cyber bullying is its measurement. As can be seen in the literature, surveys, questionnaires and scales are the major means used in the measurement of cyber bullying. For instance, Aricak et al. (2008) have developed a specific survey to measure cyber bullying. This survey consists of 21 items intended to measure practices of cyber bullying and exposure to cyber bullying as well as outlining coping strategies developed by cyber victims.

Another survey used to measure cyber bullying has been developed by Li (2005). The survey consists of 15 items about the practice of and exposure to cyber bullying among 7th, 8th and 9th year students. They are usually *Yes* or *No* questions. The cyber bullying survey that Smith, Mahdavi, Carvalho, and Tippett (2006) have designed by adapting Olweus' "Bully/Victim" survey to cyber bullying includes 7 sub-factors and 88 items. These factors are named with reference to the means used in cyber bullying such as the practice of/exposure to cyber bullying via SMS, cell phones, pictures/videos, e-mails, chat rooms, instant messages or web sites. And Ybarra (2004) has gathered information about practices of or exposure to cyber bullying with a survey on participants between 10 and 17 years old via the telephone.

Dilmaç (2009) uses a questionnaire in order to determine the practices of and exposure to cyber bullying among university students. Before the questions, a definition of cyber bullying is provided. With reference to this definition, students are asked "*Have you ever been*

involved in cyber bullying?" and "Have you ever been exposed to cyber bullying?" (1- Not at all, 2- Once, 3-Between two and four times, 4-More than five times).

*Cyber Bullying Inventory* (CBI) was developed by Erdur-Baker and first used by Erdur-Baker and Kavsut (2007). The original CBI consisted of two parallel forms; one for cyber bullying and one for cyber victimization. Cyber bully form had 16 questions and cyber victim form had 18 questions. Participants were asked to rate themselves on a 4-point Likert type scale (1 = *It has never happened to me*, 2 = *It happened once or twice*, 3 = *It happened three-five times*, 4 = *It happened more than five times*).

Topçu and Erdur-Baker (2010) is to revise Cyber Bullying Inventory (CBI) and to examine its basic psychometric characteristics. Topçu and Erdur-Baker (2010), uses an inventory for a group of people between 13 and 21 years old for this purpose. The inventory consists of two parallel forms for cyber bullies and cyber victims, with 14 items in total. The participants indicate conformability of each item to their personal case by using a 4-likert scale [from 1 (*not at all*) to 4 (*more than 3 times*)]. As a result of an illustrative factor analysis, it is determined that the form of cyber bullying clusters under only one factor.

Ayas and Horzum (2010) offer another means of measurement of cyber bullying among 6th, 7th and 8th year students. This scale includes 19 items and 3 factors intended to determine the levels of practice of and exposure to cyber bullying among "cyberbully students" and "cyber victim students." The distribution of items in the scale is determined as follows: the *bully and victim sexual matters*, the *bully and victim with regard to frustration and hurt*, the *bully and victim in spreading rumors in cyber space*. In addition, Akbulut, Sahin, and Eristi (2010) have developed a one dimensional scale consisting of 28 items. The scale includes questions about harming others, spreading rumors, slandering, excluding, pretending and falsification. Participants are between 10 and 42 years old.

Such surveys, questionnaires and means of measurement developed to determine cyber bullies and cyber victims are dedicated to revealing the practices of and exposure to cyber bullying. However the surveys and questionnaires used in these research papers have proved themselves to be inadequate as effective and reliable measurements of cyber bullying. And the one dimensional explanations offered by such cyber bullying scales reveal their limitations. For instance, questionnaires about cyber bullying/cyber victimization (Arıcak et al., 2008; Dilmaç, 2009; Li, 2005; Smith et al., 2006; Ybarra, 2004) were not determined the factors structures. Besides Revised Cyber bullying Inventory (Topçu & Erdur-Baker, 2010) and Cyber victimization Scale (Akbulut et al., 2010) have only one factor. It can be said that one factor structure does not exactly explain cyber bullying which consists of different behaviors that have different characteristics but have relations with each other. Cyber bullying includes a wide range of practices ranging from those intended to harm the social relations of individuals, such as spreading rumors, insulting, and excluding the victim from certain groups, to practices such as fraud, using the Internet for propagandist purposes on forcing people to comment on sexual matters. The attempt to measure such behavior covering a wide range of purposes with a one dimensional scale renders it harder to obtain healthy information about the nature and prevalence of cyber bullying, as well as making it harder to discover the relationship between cyber bullying and several variables. This means of measurement which takes cyber bullying as a multi-dimensional fact is believed to help researchers in their attempt to investigate the relationship between cyber bullying and several variables. For instance, it may be argued that this scale, which acknowledges that the reactions of cyber victims to sexual bullying or fraud would be widely different and which, for this reason, considers cyber bullying in terms of sub-dimensions, enables the researcher to reach more viable results in terms of discovering coping strategies for cyber victims.

Hence it is understood that the inclusion of multiple dimensions in a cyber bullying scale is significant. It is also seen that the measurement of practices of and exposure to cyber bullying among adolescents is not always conducted with valid and reliable measurement tools. For this reasons, a scale needs to be developed in terms which would serve to determine cases of cyber bullying among adolescents.

## 2. Method

The study is a scale development one. This section includes information about the study group of the scale and development activities.

### 2.1. Study group

Since the purpose of the study was to develop a scale for measuring cyber victim and cyber bullying behaviors, the study group was comprised of 600 students – 9th, 10th, 11th and 12th grades. Statistical analyses were carried out on the data obtained from the study group and a scale was developed. During the development of The Cyber Victim and Bullying Scale (CVBS), the survey was taken by a total of 600 students. Before proceeding with the statistical analysis, questionnaires where only half the answers were filled out, items marked without being read beforehand, items marked with more than one marked choice, and wrongly filled out items were all excluded. Participants who were not included in the research data consisted of 9th, 10th, 11th and 12th year students in the three different types of schools where the research was conducted. The attrition rate of males and females were identical. As a result, only 404 of 600 SKZÖ were subjected to statistical analysis.

250 male and 154 female students participated in the research. Among the students, 18 of them were 14 years old, 75 were 15 years, 87 were 16 years, 110 were 17 years, 65 were 18 years and 49 of them were 19 years old. The mean age of the sample was 16.68 and the standard deviation was 1.38.

### 2.2. Procedures

Prior to the development of CVBS, an item pool was composed by carrying out interviews and observations with the students and teachers from the secondary schools by conducting a study of the focus group, and by making a review of the available literature. The item pool included a total of 45 items. A five point Likert scale was used in order to express the level of agreement with the items included in the scale. The grading was as follows: "Always (5), Frequently (4), Occasionally (3), Rarely (2) and Never (1).

Initially, for validity purposes, specialists were consulted about the content and face validity of the scale. The scale was submitted to five specialists in three Psychological Counseling and Guidance, one in Testing and Evaluation, and one in Turkish language to assess their opinions concerning content and face validity. In accordance with their opinions and criticism, the scale was revised, and certain items were

excluded. In all, 23 items were excluded because some of them had been expressed inappropriately, or had irrelevant content, or because these items were already covered in the scale. Validity and reliability studies were performed on these items. According to these specialists, the 22 items adequately exemplify bullying behaviors adequately and are appropriate for measuring cyber bullying.

After the specialists' reviews of the item pool, the final 22 item scale was arranged to consist of two sections. In the first section, "The Scale of the Cyber Victim" (SCV), the students were asked to express their opinions regarding the 22 items prepared in order to determine the level of their exposure to cyber bullying. In addition, they were asked to select the valid grade for the items included in the section "I was exposed to". In the second section, "The Scale of Cyber Bullying" (SCB), the students were asked to express their opinions regarding the same 22 items in order to identify their level of exhibiting cyber bullying behaviors. Then they were asked to select the valid grade for the items included in the section "I exhibited" and in this way the scale form was finalized.

Before beginning to collect research data, in order to obtain the necessary permission, we communicated with the directors of the school where our research would be conducted and informed them of the aim of our research. The scales were applied in the class environment while students were having their lessons. Before the application, the students who had volunteered to respond to the scale were determined and they were informed about how they should respond and warned not to influence each other while responding. In order to assure that they respond to the scale honestly and sincerely without any uncertainty, students were told not to write any information about their identity on their scale forms. They were also informed that their responses would be kept confidential and used only for the purposes of the research.

### 2.3. Instruments

For criterion related validity of the cyber bullying and victim questionnaire, an Aggression Questionnaire was used. The Aggression Questionnaire was developed by Buss and Perry (1992) with the aim of measuring aggression. Based on the self-report technique, the questionnaire was comprised of a total of 34 items. In the form of a 7 point likert, the questionnaire asked the individuals to determine the level of harmony between the statements included in the questionnaire and their characters, in a way that ranged from "Extremely Uncharacteristic of Me", to "Extremely Characteristic of Me" (Can, 2002; Palmer & Thakordas, 2003). The Aggression Questionnaire was comprised of five sub-dimensions, namely "physical aggression", "verbal aggression", "anger", "hostility" and "indirect aggression" (Can, 2002).

The adaptation of the questionnaire to Turkey and studies regarding its validity and reliability were undertaken by Can (2002). The internal consistency coefficient of the questionnaire was found to be .91. The test-retest reliability was .76. Furthermore, the test-retest reliability for the sub-questionnaires was .84 in physical aggression; .69 in verbal aggression; .74 in anger; .81 in hostility; .74 in indirect aggression; and .85 in total aggression. The criterion related validity of the scale was examined by means of the State-Trait Anger Scale. It was found that there was a positive correlation between Trait Anger, Anger-in and Anger-out, three sub-scales of the State-Trait Anger Scale, and the Aggression Questionnaire, and that the correlation coefficients ranged between .53 and .74. The correlation between Anger Control and the total scores from the Aggression Questionnaire, as well as the scores from all its sub-scales, was negative (Can, 2002).

### 2.4. Analysis

The scale was implemented on the study group so as to determine its psychometric characteristics. Initially, a principal component analysis was carried out on the data to calculate the factor structure. During the principal component analysis, great care was taken to ensure that the eigenvalues of the factors would be at least 1 (Shevlin & Lewis, 1999), that the value of the factor loadings would be at least .30 (Martin & Newell, 2004; Schriesheim & Eisenbach, 1995), that items would be included in one single factor, and that there would be a difference of at least .10 between factors in the event that they were included in two factors (Büyüköztürk, 2007). As well, the one-item dimension was omitted and a factor which could not account for 5% variance (Erçetin, Çetin, & Potas, 2007; Scholz, Dona, Sud, & Schwarzer, 2002) was excluded from the scale. Furthermore, the principal component analysis was done with varimax rotation. For factorability of the data, the Kaiser Mayer Olkin (KMO) measure of sampling adequacy and the Barlett test were used. A value of KMO over .60 and significant test statistics from the Barlett test suggest that the data was suitable for factor analysis. (Tabachnick & Fidell, 1996). A high amount of variance accounted for could be interpreted as an indicator of how well a relevant notion or construct can be measured (Büyüköztürk, 2007).

Confirmatory factor analysis was carried out to determine if the model data fit between the item-factor structures obtained from the principal component analysis. As usual, fit indexes for GFI, CFI, NFI, RFI, NNFI and IFI of .90 and above were accepted as an acceptable fit (Hu & Bentler, 1999), and .08 and below for RMSEA (Cole, 1987). The correlation between CVBS and the Aggression Questionnaire was calculated for the criterion related validity.

The internal consistency, split-half reliability and test-retest correlation were employed for the reliability of the scale. Test-retest reliability was conducted using Pearson product-moment correlation coefficient over three week interval. The sample of test-retest reliability studies consisted of 100 students from the main sample. The programs SPSS 16 and LISREL 8.54 (Jöreskog & Sorbom, 1996) were used for the validity and reliability analysis. The item analysis of the CVBS was studied through corrected item-total correlation.

## 3. Results

The factor structure of the CVBS was studied through exploratory and confirmatory factor analyses. The Aggression Questionnaire was used for criterion related validity. The methods of internal consistency, split-half reliability and test-retest were employed for reliability.

### 3.1. Exploratory factor analysis (EFA)

To explore the factor structure of a scale, EFA is commonly used. In this study, a principal component EFA was carried out in order to determine the factor structure of the CVBS.

**Table 1**  
The factor loadings of the items in the cyber victim and bullying scale.

Item No	Cyber victim			Cyber bullying		
	Cyber forgery	Cyber verbal bullying	Hiding identity	Cyber forgery	Cyber verbal bullying	Hiding identity
13	.56			.32		
14	.51			.59		
15	.56			.62		
16	.65			.76		
17	.76			.74		
18	.78			.80		
19	.55			.48		
20	.52			.63		
21	.52			.67		
22	.49			.69		
1		.53			.49	
2		.66			.65	
3		.61			.59	
4		.71			.74	
5		.74			.73	
6		.60			.60	
7		.64			.68	
8			.37			.49
9			.52			.58
10			.63			.53
11			.69			.76
12			.72			.72
Expl. Var. (%)	17.6	15.51	13.26	20.87	16.53	11.78
Tot. Exp. Var. (%)	46.38			49.18		

### 3.1.1. Exploring the factor structure of the scale of the cyber victim

The KMO coefficient was .87 and the  $\chi^2$  from the Barlett test was 3161.22 ( $p < .001$ ), for the SCV. This result suggested that the data was suitable for the principal component factor analysis.

The principal component analysis concluded that the SCV had a three-factor structure accounting for 46.38% of the total variance. One of these factors consisted of 10 items. Factor loadings of the items included in this factor ranged between .49 and .78, accounting for 17.6% of the total variance in the scale, this factor was termed “Cyber Forgery (CF)”. The second factor consisted of 7 items. Factor loadings of the items included in this factor ranged between .53 and .74. Accounting for 15.51% of the total variance in the scale, this factor was termed “Cyber Verbal Bullying” (CVB). The third factor consisted of 5 items. The loadings of the items included in this factor ranged between .37 and .72. Accounting for 13.26% of the total variance in the scale, this factor was termed “Hiding Identity” (HI). Total scores were obtained from SCV for both the whole scale and each sub-dimension. The increase in total scores concerning both the whole scale and the sub-dimensions suggests that the exposure to cyber bullying experiences an increase. The factor loads of the items in the scale and the amount of variance accounted for by the sub-scales are presented in Table 1.

**Table 2**  
Revised (if item deleted) scale statistics and, item–test correlations for the scale of cyber victim and bully.

Items	Scale mean		Scale variance		Item–total correlation		Alpha	
	SCV	SCB	SCV	SCB	SCV	SCB	SCV	SCB
1	39.38	38.80	165.70	201.51	.43	.45	.88	.88
2	39.10	38.36	164.79	199.63	.42	.46	.88	.88
3	38.90	38.20	162.80	194.86	.43	.49	.89	.88
4	38.90	37.84	164.05	197.56	.46	.45	.88	.88
5	39.11	38.09	162.95	197.63	.50	.46	.88	.88
6	39.47	38.90	162.98	197.86	.55	.60	.88	.88
7	39.42	38.70	164.33	196.250	.52	.58	.88	.88
8	39.37	38.54	166.31	199.10	.40	.41	.89	.88
9	38.84	37.82	165.67	201.39	.38	.32	.89	.89
10	39.24	38.39	161.71	196.47	.54	.50	.88	.88
11	39.27	38.31	164.49	200.54	.46	.36	.88	.88
12	39.15	38.56	165.63	196.85	.38	.48	.89	.88
13	39.53	38.61	162.34	191.28	.60	.31	.88	.90
14	39.50	38.71	164.43	194.40	.50	.64	.88	.88
15	39.67	38.79	166.24	195.80	.52	.62	.88	.88
16	39.61	38.90	166.94	197.88	.46	.60	.88	.88
17	39.53	38.82	165.41	197.62	.51	.61	.88	.88
18	39.63	38.91	165.97	200.58	.46	.51	.88	.88
19	38.99	38.30	164.71	195.00	.46	.55	.88	.88
20	39.77	39.02	163.21	198.73	.64	.63	.88	.88
21	39.73	39.10	163.14	200.10	.63	.61	.88	.88
22	39.72	39.17	162.98	201.86	.56	.59	.88	.88

3.1.2. Exploring the factor structure of the scale of cyber bullying

The KMO statistic was .90 and the Barlett test  $\chi^2$  was 3497.58 ( $p < .001$ ), for the SCB. A value of KMO over .60 and a significant  $\chi^2$  from the Barlett test suggest that the data is suitable for factor analysis (Büyüköztürk, 2007).

The principal component analysis concluded that the SCB had a three-factor structure accounting for 49.18 of the total variance. The first factor consisted of 10 items. The item loadings in this factor ranged between .32 and .80. Accounting for 20.87% of the total variance in the scale, this factor was termed Cyber Forgery (CF). The second factor consisted of 7 items. The loadings of the items included in this factor ranged between .49 and .74. Accounting for 16.53% of the total variance in the scale, this factor was termed Cyber Verbal Bullying (CVB). The third factor consisted of 5 items. The loadings of the items included in this factor ranged between .49 and .76. Accounting for 11.78% of the total variance in the scale, this factor was termed Hiding Identity (HI). Total scores were obtained from SCB for both the whole scale and each sub-dimension. The increase in total scores concerning both the whole scale and the sub-dimensions suggests that cyber bullying experiences an increase. The factor loadings of the items in the scale and the amount of variance accounted for by the sub-scales are presented in Table 1.

3.2. Item analysis

An item analysis was conducted with the aim of determining the item–total correlation of the Scale of Cyber Victim and Bullying. The analysis concluded that the corrected item–total correlations for the SCV ranged from .38 to .64. The findings are presented in Table 2.

The analysis concluded that the corrected item–total correlations for the SCB ranged from .31 to .64. The findings are presented in Table 2.

3.3. Confirmatory Factor Analysis (CFA)

Comprised of 22 items and three sub-factors, the SCV and SCB were tested via confirmatory factor analysis.

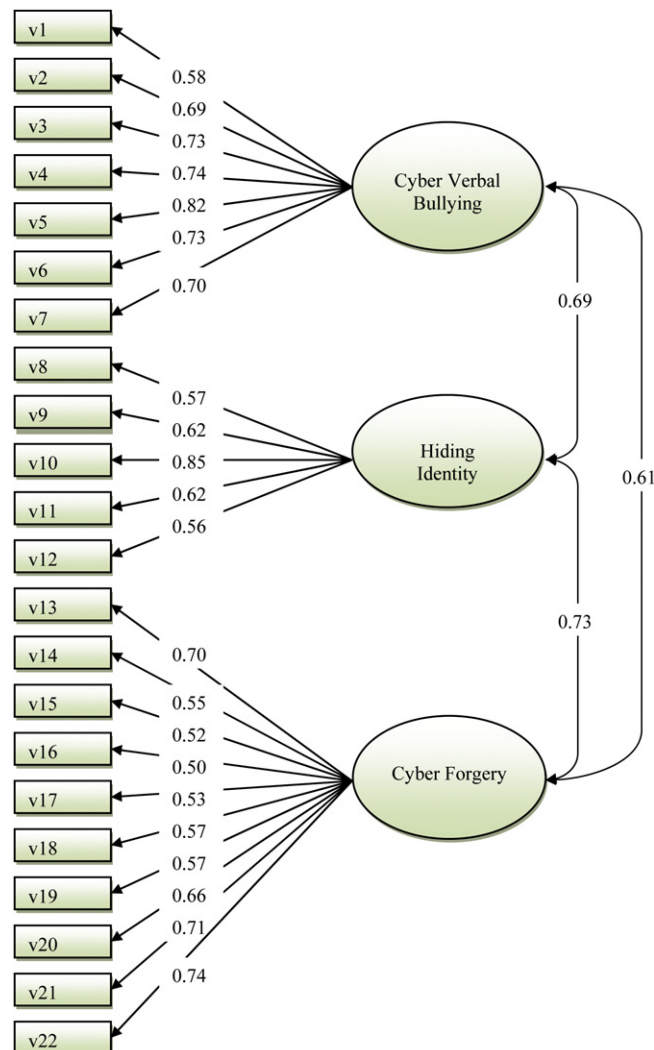


Fig. 1. Results of the confirmatory factor analysis for cyber victim.

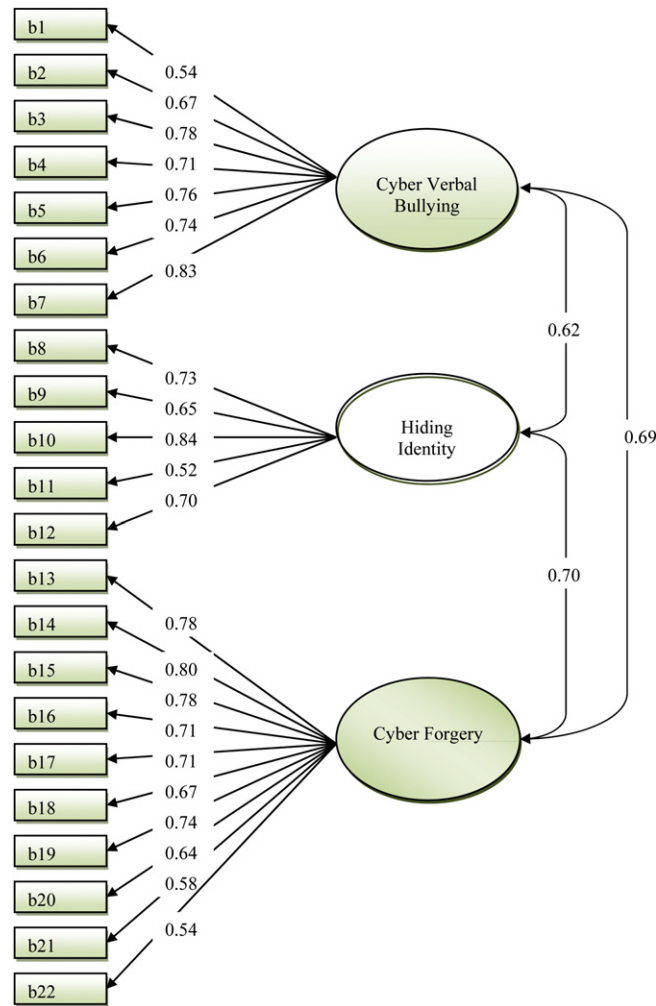


Fig. 2. Results of the confirmatory factor analysis for cyber bullying.

3.3.1. Confirmatory factor analysis for the scale of cyber victim

The fit indexes for the model obtained through the confirmatory factor analysis were studied and the Chi-square value was found to be significant ( $\chi^2 = 482.33$ ,  $sd = 200$ ,  $p = .00$ ,  $\chi^2/sd = 2.41$ ). The fit index values were found to be as follows: RMSEA = .058, NFI = .96, CFI = .96, IFI = .94, RFI = .93, GFI = .90 and NNFI = .96. These fit index values suggest that the three factors model yielded a good fit. The factor loadings concerning the three-dimensional model are presented in Fig. 1. As can be concluded from Fig. 1, the factor loadings ranged from .58 to .82 for the sub-dimension CVB; from .56 to .85 for the sub-dimension HI; and from .50 to .74 for the sub-dimension CF.

3.3.2. Confirmatory factor analysis for the scale of cyber bullying

The fit indexes for the model obtained through the confirmatory factor analysis were studied and Chi-square value was found to be significant ( $\chi^2 = 463.72$ ,  $sd = 201$ ,  $p = .00$ ,  $\chi^2/sd = 2.31$ ). The fit index values were found to be as follows: RMSEA = .056, NFI = .95, CFI = .97, IFI = .95, RFI = .94, GFI = .91 and NNFI = .976. These fit indexes suggest that the three factor model yielded a good fit. The factor loadings concerning the three-dimensional model are presented in Fig. 2. As can be concluded from Fig. 2, the factor loadings ranged from .54 to .83 for the sub-dimension CVB; from .52 to .84 for the sub-dimension HI; and from .54 to .80 for the sub-dimension CF.

3.3.3. Factor structure and gender

CFA studies were conducted separately across gender regardless of factorial structures of scales are invariance. Goodness of fit indexes in the CFA is presented in Table 2. In CVS, the factor loadings varied between .39 and .86 for both groups. Also when we look over Table 3,

Table 3

CFA fit indexes for CVS and CBS according to gender.

Scale	Gender	$\chi^2/sd$	RMSEA	CFI	IFI	NNFI	NFI
SCV	male	3.71	.10	.90	.90	.88	.86
	female	3.96	.10	.90	.90	.88	.87
SCB	male	3.74	.10	.90	.90	.87	.86
	female	4.97	.11	.92	.92	.90	.90

**Table 4**

The correlation coefficients between the scale of cyber victim and bullying with the aggression sub-scales.

Aggress. Sub-Scales	Cyber victim				Cyber bullying			
	CVB	HI	CF	Total	CVB	HI	CF	Total
Physical Ag.	.227**	.140**	.159**	.217**	.382**	.250**	.245**	.352**
Verbal Ag.	.186**	.132**	.082	.159**	.289**	.133**	.160**	.236**
Anger	.210**	.162**	.146**	.210**	.292**	.134**	.142**	.229**
Hostility	.218**	.215**	.197**	.255**	.235**	.112*	.150**	.204**
Indirect Ag.	.222**	.187**	.173**	.236**	.388**	.242**	.293**	.377**
Total (AS)	.266**	.206**	.192**	.270**	.397**	.221**	.246**	.350**

\* $p < .05$  \*\* $p < .01$ .

goodness of fit indexes were identical in both groups. In SCB, the factor loadings varied between .38 and .78 for male, and .42 and .87 for female. As seen in Table 3, some goodness of fit indexes are in favor of the female sample, and some are in favor of the male sample.

### 3.4. Criterion related validity

The Aggression Scale (AS), developed by Buss and Perry (1992) and adapted to Turkish by Can (2002), was used in order to determine the criterion related validity of the Scale of Cyber Victim and Bullying. The correlation coefficients between the CVBS and the AS were calculated for the criterion related validity of the scale. It was observed that the correlation coefficient between the SCV and the AS was .27 ( $p < .01$ ). Furthermore, it was observed that the correlation coefficients between the AS and the sub-dimensions of the SCV were .266 ( $p < .01$ ), .206 ( $p < .01$ ) and .192 ( $p < .01$ ) for CVB, HI and CF respectively.

It was observed that the correlation coefficient between the SCB and the AS was .350 ( $p < .01$ ). Furthermore, it was found that the correlation coefficients between the AS and the sub-dimensions of the SCB were .397 ( $p < .01$ ), .221 and .246 ( $p < .01$ ) for CVB, HI and CF respectively.

Table 4 shows the total score of the SCV and SCB as well as the correlation coefficients between the scores obtained from the sub-scales of CVBS and the sub-scales of AS.

### 3.5. Reliability

A number of methods were employed for determining the reliability of the Scale of Cyber Victim and Bullying. These included internal consistency, split-half reliability and test-retest methods.

#### 3.5.1. Reliability of cyber victim scale

The internal consistency coefficient of the Scale of Cyber Victim was found to be .89. The correlation coefficients in the sub-dimensions of the SCV were .86, .80 and .68 for CF, CVB and HI respectively. The split-half reliability of the SCV was .79. The split-half reliability values were .82, .77 and .55 for CF, SVB and HI respectively. The test-retest reliability of the SCV was .85. As for the sub-dimensions, the values were .87, .80 and .69 for CF, SVB and HI respectively. The reliability coefficients for the SCV calculated by means of the methods of internal consistency, split-half reliability and test-retest are presented in Table 5.

#### 3.5.2. Reliability of the cyber bullying scale

The inner consistency coefficient of the Scale of Cyber Bullying was found to be .89. The correlation coefficients in the sub-dimensions of the SCB were .83, .81 and .69 for CF, CVB and HI respectively. The split-half reliability of the SCV was .79. The split-half reliability values were .81, .78 and .55 for CF, SVB and HI respectively. The test-retest reliability of the SCV was .90. As for the sub-dimensions, the values were .86, .83 and .72 for CF, SVB and HI respectively. The reliability coefficients for the SCB calculated by means of the methods of internal consistency, split-half reliability and test-retest are presented in Table 5.

### 3.6. Descriptive statistics of CVBS' items and sub-dimensions

Means and standard deviation of items and sub-dimension of cyber victim and bullying scale were given in Table 6.

As can be seen in Table 6, the items "Using offensive symbols on the Internet" and "Mocking on the Internet" were the most commonly exposed bullying behaviors. "Mocking on the Internet" and "Making fun of shared information on the Internet" were the most commonly exhibited cyber bullying behaviors. "Using the Internet as a slandering tool" was a less commonly exposed and exhibited cyber bullying behavior. Prevalence means of other items are shown in Table 6.

**Table 5**

Internal consistency, split-half and test-retest coefficients of SCV and SCB scales.

Sub-dimension	Internal consistency		Split-half		Test re-test	
	SCV	SCB	SCV	SCB	SCV	SCB
Cyber forgery	.86	.83	.82	.81	.87	.86
Cyber verbal bullying	.80	.81	.77	.78	.80	.73
Hiding identity	.68	.69	.56	.55	.69	.72
Cyber victim total	.89	.89	.79	.79	.85	.90



**Table 6**  
Means and standart deviationsof CVBS' items and sub-dimensions.

Items	Done to me (Cyber Victim)		I did it (Cyber Bullying)	
	Mean	SD	Mean	SD
1. Rumoring on the Internet	1.84	1.13	1.61	1.04
2. Using nicknames on the Internet in a disturbing way	2.13	1.22	2.06	1.19
3. Using offensive symbols on the Internet	2.33	1.37	2.23	1.40
4. Mocking on the Internet	2.33	1.19	2.57	1.31
5. Making fun of shared information on the Internet	2.12	1.19	2.33	1.29
6. Writing offensive comments about news on websites	1.76	1.08	1.56	1.02
7. Using humiliating expressions on the Internet	1.81	1.05	1.75	1.13
8. Using someone's identity without his/her permission on the Internet	1.85	1.15	1.85	1.22
9. Hiding identity on the Internet	2.39	1.25	2.60	1.39
10. Entering someone's private page without permission on the Internet	1.99	1.19	2.03	1.29
11. Hacking someone's' private webpage without permission	1.96	1.16	2.11	1.35
12. Sending infected file/program via e-mails.	2.08	1.27	1.86	1.29
13. Sharing videos without permission on the Internet	1.70	1.05	1.71	1.17
14. Sharing someone's photos without permission on the Internet	1.73	1.08	1.71	1.14
15. Editing photos in offensive manner on the Internet	1.56	.93	1.63	1.09
16. Forcing to talk about sexual issues on the Internet	1.62	.99	1.51	1.01
17. Using sexual symbols while chatting on the Internet	1.70	1.00	1.59	1.01
18. Sharing images with sexual content on the Internet	1.60	1.04	1.50	.99
19. Using abusive/insulting language in e-mails	2.25	1.15	2.12	1.26
20.Using Internet as a slandering tool	1.47	.94	1.39	.93
21.Using Internet as a propaganda tool for own benefit	1.50	.96	1.32	.88
22.Using Internet for fraudulent act	1.51	1.08	1.25	.81
Cyber Verbal Bullying (Factor I)	14.32	5.58	14.11	5.74
Hiding Identity (Factor II)	10.27	4.01	10.47	4.44
Cyber Forgery (Factor III)	16.64	6.81	15.83	7.65

#### 4. Conclusion and discussion

The study included the development of the Scale of Cyber Victim and Bullying and an attempt to determine the psychometric characteristics of the scale in order to separately identify “victim” and “bullying”, two different dimensions of being exposed to or exhibiting cyber bullying behaviors in schools. Initially, a principal component analysis was carried out on the Scale of Cyber Victim and Bullying, suggesting a three-factor structure accounting for 46.38% of the total variance in SCV and 49.18% of the total variance in SCB. The exploratory and confirmatory factor analysis concluded that the model, consisting of 22 items and three factors, was theoretically and statistically appropriate.

The CVBS consists of two scales, namely SCV and SCB. The lowest and highest scores that can be obtained from the CVBS are 22 and 110 respectively. An increase in scores refers to a corresponding increase in the level of exposure to and exhibiting cyber bullying behaviors. As for the distribution of the items, seven items were designated as CVB; five items as HI; and ten items as CF. In review of literature, some evidence of sub-dimension of CVBS could be found. Instant messaging, teasing, spreading rumors, humiliating, physical threat (Lacey, 2007), disclosing secrets, attacking the personality (Ponsford, 2007), insults, jokes (Bamford, 2004) etc. could be accepted as evidence of cyber verbal bullying (CVB). Hiding identity (HI) is one of the most common crucial elements of cyber bullying (Belsey, 2007; Shariff & Gouin, 2005; Slonje & Smith, 2008; Soutworth et al., 2007). Publication of private pictures (Ybarra et al., 2006), broadcasting videos about people, displaying others' physical characteristics in a humiliating manner (Hinduja & Patchin, 2009), and creating fake accounts (Shariff, 2008) could be taken as examples of cyber forgery (CF).

In terms of criterion related validity, the CVBS was significantly correlated in the expected direction with the Aggression Questionnaire. The literature includes studies which have reported that cyOber bullying leads to aggression (Aricak, 2009; Beran & Li, 2005; Dilmaç, 2009; Harman, Hansen, Conchran, & Lindsey, 2005; Ponsford, 2007; Willard, 2007; Ybarra & Mitchell, 2007; Ybarra et al., 2006,2007). The correlation between the CVBS and the Aggression Questionnaire can be regarded as an indicator of the fact that the scale has criterion related validity.

In this study, the correlation between SCV and SCB computed as .42 ( $p < .01$ ). This coefficient and the positive correlation between the level of exposure to cyber bullying and the Aggression Questionnaire can be interpreted as an indicator of the fact that the victims also exhibited cyber bullying behaviors. This is supported by the findings of the studies which found that 7% of the students (Kowalski & Limber, 2007), 59.2% of the students ranging in age from 11 to 15 (Lacey, 2007), 3% of the Internet users (Ybarra and Mitchell, 2007) and 23.8% of the students (Aricak et al., 2008) were both victims and bullies.

A number of methods including internal consistency, split-half reliability and test-retest were used in order to determine the reliability of the CVBS. The analyses concluded that the internal consistency and split-half reliability coefficients for the SCV and the sub-dimensions were fairly acceptable. Furthermore, the test-retest process, which was carried out after an interval of 30 days, indicated that the scale scores were stable for 30 days. Only for the HI sub-dimension, reliability coefficients were relatively low. One reason why the internal consistency, split-half reliability and test-retest reliability scores for HI, a sub-dimension of the SCV, were low can be attributed to the small number of items. Even so, high value obtained from the internal consistency, split-half reliability and test-retest reliability processes for the SCV mean that the scale has an acceptable level of reliability.

Furthermore, the internal consistency, split-half reliability and test-retest coefficients for the SCB were at an acceptable level. Nevertheless, the fact that the internal consistency and split-half reliability scores for HI, a sub-dimension of the SCB, were low can be attributed to the small number of items. Even so, high scores obtained from the internal consistency and split-half reliability processes for the SCB indicated that the scale has a acceptable level of reliability.

The internal consistency coefficients for the CVBS (.89 for cyber victim and bullying) are similar to the ones obtained from the Scale of Cyber Bullying and Victim (.81 for cyber bullying and victim) developed by Ayas and Horzum (2010) for primary schools students. The reliability coefficients obtained from the three methods demonstrate that the scale has a high level of reliability. Considering that the level of reliability required for any measurement tool to be used in studies is .70 (Tezbasaran, 1996), the Spearman–Brown reliability coefficient, which determined a consistency between the internal consistency coefficient of the scale and the test scores obtained, can be regarded as high enough to argue that the measurement tool is in fact reliable.

The results of this study must be viewed in light of some limitations on the generality of the results. The sample of the study consisted only of high school students. In addition, confirmatory factor analysis was conducted with the same sample of exploratory factor analysis data. Despite these limitations, overall it was demonstrated that the CVBS showed adequate reliability and satisfactory validity. CVBS can be used for determining the level of exposure to or exhibiting cyber bullying behaviors among students in high schools. On the other hand, it will make great contributions to the measuring power of the CVBS to conduct various studies through the scale.

If acceptable attributes of the developed scale are taken into account, this scale can be used for further research. In addition, the validity and reliability level of the scale can be tested for different samples. Furthermore, the factor structure set out in this study can be verified with different samples via the confirmatory factor analysis.

## References

- Akbulut, Y., Sahin, Y. L., & Eristi, B. (2010). Development of a scale to investigate cybervictimization among online social utility members. *Contemporary Educational Technology*, 1(1), 46–59.
- Aricak, O. T. (2009). Psychiatric symptomatology as a predictor of cyberbullying among university students. *Eurasian Journal of Educational Research*, 34, 167–184.
- Aricak, T., Siyahhan, S., Uzunhasanoğlu, A., Sarıbeyoğlu, S., Çiplak, S., Yılmaz, N., et al. (2008). Cyberbullying among Turkish adolescents. *CyberPsychology & Behavior*, 11(3), 253–261.
- Ayas, T., & Horzum, M. B. (2010). Cyber bully/victim scale development study. *Akademik Bakış Uluslararası Hakemli Sosyal Bilimler E-Dergisi*, 19, Celalabat, Kırgızistan.
- Aydoğan, D., Dilmaç, B., Deniz, E. (2009, 1–3 Ekim). An investigation of social support and cyber bullying among primary school students. Paper presented at 18. Turkish national Educational science Congress. Ege University, İzmir, Turkey.
- Büyükköztürk, S. (2007). *Data analysis for social science*. Ankara (Turkey): Pegem Academic Press.
- Badiuk, W. B. (2006). *Cyberbullying in the global village: The worldwide emergence of high-tech as a weapon for bullies*. Retrieved November 18, 2007, from <http://members.shaw.ca/alappel/cyber.html>.
- Bamford, A. (2004). Cyber-bullying. Ahisa pastoral care national conference. Melbourne, Australia.
- Belsey, B. (2007). Cyberbullying: a real and growing threat. *ATA Magazine*, 88(1), 14–21.
- Beran, T., & Li, Q. (2005). Cyber harassment: a study of new method for an old behavior. *Journal of Educational Computing Research*, 32(3), 265–277.
- Berger, K. (2007). Update on school bullying at school: Science forgotten? *Development Review*, 27, 90–126.
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, 63, 452–459.
- Calvete, E., Orue, I., Estevez, A., Villardon, L., & Padilla, P. (2010). Cyberbullying in adolescent: modalities and aggressors' profile. *Computer in Human Behavior*, 26, 1128–1135.
- Can, S. (2002). Validity and reliability of the scale called aggression questionnaire in Turkish population. Unpublished MA Dissertation, GATA Haydarpaşa Training Hospital, İstanbul.
- Cole, D. A. (1987). Utility of confirmatory factor analysis in test validation research. *Journal of Consulting and Clinical Psychology*, 55, 1019–1031.
- Dilmaç, B. (2009). Psychological needs as a predictor of cyber bullying: a preliminary report on college students. *Educational Sciences: Theory & Practice*, 9(3), 1307–1325.
- Erçetin, S.S., Çetin, B., & Potas, N. (2007). Multi-dimensional organizational intelligence scale (muldimorins). *World Applied Sciences Journal*, 2(3), 151–157.
- Erdur-Baker, Ö. (2010). Cyber bullying and its correlation to traditional bullying, gender, frequent and risky usage of Internet mediated communication tools. *New Media and Society*, 12, 109–126.
- Erdur-Baker, Ö., & Kavrut, F. (2007). Cyber bullying. A new face of peer bullying. *Eurasian Journal of Educational Research*, 27, 31–42.
- Harman, J. P., Hansen, C. E., Conchran, M. E., & Lindsey, C. (2005). Liar, liar: Internet faking but not frequency of use affects social skills, self esteem, social anxiety, and aggression. *CyberPsychology & Behavior*, 8, 1.
- Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Available from. California: Carwin Press. <http://books.google.com/books>.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structural analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Jöreskog, K. G., & Sorbom, D. (1996). *LISREL 8 reference guide*. Lincolnwood, IL: Scientific Software International.
- Keith, S., & Martin, M. E. (2005). Cyber bullying: creating culture of respect in a cyber world. *Reclaiming Children and Youth*, 13(4), 224–228.
- Kowalski, R. M., & Limber, P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health*, 41, 522–530.
- Kowalski, R. M., Limber, P., & Agatston, P. W. (2008). *Cyberbullying: Bullying in the digital age*. Malden, MA: Blackwell Publishing.
- Lacey, B. (2007). Social aggression: a study of internet harassment. Unpublished Doctoral Dissertation, Long Island University.
- Li, Q. (2005). Cyber harassment: a study of new method for an old behavior. *Journal of Educational Computing Research*, 32(3), 265–277.
- Li, Q. (2007). Bullying in the new playground: research into cyberbullying and cyber victimisation. *Australasian Journal of Educational Technology*, 23(4), 435–454.
- Martin, C. R., & Newell, R. J. (2004). Factor structure of the hospital anxiety and depression scale in individuals with facial disfigurement. *Psychology Health and Medicine*, 3, 327–336.
- Noret, N., Rivers, I. (2006, April). The prevalence of bullying by text message or email: result of a four year study. Poster Presented at British Psychological Society Annual Conference, Cardiff.
- Palmer, J., & Thakordas, V. (2003). Relationship between bullying and scores on the buss perry aggression questionnaire among imprisoned male offenders. *Aggressive Behavior*, 31, 56–66.
- Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the school yard: a preliminary look at cyber bullying. *Youth Violence and Juvenile Justice*, 4(2), 148–169.
- Ponsford, J. (2007). The future of adolescent female cyber-bullying: electronic media's effect on aggressive female communication. Unpublished honors thesis, Texas State University, Texas.
- Raskauskas, J., & Stoltz, A. D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental Psychology*, 43, 564–575.
- Scholz, U., Dona, B. G., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? *European Journal of Psychological Assessment*, 3, 242–251.
- Schriesheim, C. A., & Eisenbach, R. J. (1995). An exploratory and confirmatory factor analytic investigation of item wording effects on obtained factor structures of survey questionnaire measures. *Journal of Management*, 6, 1177–1193.
- Shariff, S. (2008). *Cyber-bullying. Issues and solutions for the school, the classroom and the home*. New York: Routledge.
- Shariff, S., Gouin, R. (2005). Cyber- dilemmas: Gendered hierarchies free expression and cyber-safety in schools. Paper presented at safety and security in a networked world: Balancing cyber-rights and responsibilities. Oxford Internet Institute Conference, on September 8, 2005, Oxford, U.K.
- Shevlin, M. E., & Lewis, C. A. (1999). The revised social anxiety scale: exploratory and confirmatory factor analysis. *The Journal of Social Psychology*, 2, 250–252.
- Slonje, R., & Smith, P. K. (2008). Cyberbullying: another main type of bullying? *Scandinavian Journal of Psychology*, 49, 147–154.
- Smith, P. K., Mahdavi, J., Carvalho, M., & Tippett, N. (2006). *An investigation into cyberbullying, its forms, awareness and impact, and the relationship between age and gender in cyberbullying. (A report to the anti-bullying alliance)*. Research Brief No:R BX03-06. London: DFES.
- Soutworth, C., Finn, J., Dawson, S., Fraser, C., & Tucker, S. (2007). Intimate partner violence, technology, and stalking. *Violence Against Women*, 13, 842–856.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*. New York: HarperCollins College Publishers.
- Tezbasaran, A. A. (1996). *Likert tipi ölçek geliştirme kılavuzu*. Ankara: Türk Psikologlar Derneği Yayınları.
- Topçu, Ç. (2008). The relationship of cyber bullying to empathy, gender, traditional bullying, internet use and adult monitoring. Unpublished Master Dissertation, Middle East Technical University, Ankara.

- Topçu, Ç. & Erdur-Baker, Ö. (2010). The revised cyber bullying inventory (RCBI): validity and reliability studies. *Procedia – Social and Behavioral Sciences*, .
- Willard, N. (2007). *Cyberbullying and cyberthreats*. Available from. U.S.A: Research Press. <http://books.google.com/books>.
- Wolak, J., Mitchell, K., & Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. *Journal of Adolescent Health*, 41, S51–S58.
- Ybarra, M. L. (2004). Linkages between depressive symptomatology and Internet harassment among young regular Internet users. *Cyber Psychology & Behavior*, 7(2), 247–257.
- Ybarra, M. L., & Mitchell, K. J. (2007). Prevalence and frequency of Internet harassment instigation: implications for adolescent health. *Journal of Adolescent Health*, 41, 189–195.
- Ybarra, M. L., Espelage, D. L., & Mitchell, K. J. (2007). The co-occurrence of Internet harassment and unwanted sexual solicitation victimization and perpetration: associations with psychosocial indicators. *Journal of Adolescent Health*, 41(6), S31–S41.
- Ybarra, M., Mitchell, K., Wolak, J., & Finkelhor, D. (2006). Examining characteristics and associated distress related to Internet harassment: findings from the second youth Internet safety survey. *Pediatric*, 118, 1169–1177.
- Ybarra, M., West, M. D., & Leaf, P. (2007). Examining the overlap in Internet harassment and school bullying: implications for school intervention. *Journal of Adolescent Health*, 41, S42–S50.