Cyberbullying among a clinical adolescent sample in Turkey: effects of problematic smartphone use, psychiatric symptoms, and emotion regulation difficulties

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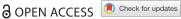
Hesna Gül [a], Sümeyra Fırat[b], Mehmet Sertçelik [c], Ahmet Gül [d], Yusuf Gürel[e] and Birim Günay Kılıç[e]

[a]Department of Child and Adolescent Psychiatry, Gulhane Research and Training Hospital, Ankara, Turkey; [b]Department of Child and Adolescent Psychiatry, Şırnak State Hospital, Merkez/Şırnak, Turkey; [c]Department of Child and Adolescent Psychiatry, Hitit University School of Medicine Hospital, Çorum, Turkey; [d]Department of Psychiatry, Ufuk University School of Medicine, Ankara, Turkey; [e]Department of Child and Adolescent Psychiatry, Ankara University School of Medicine, Ankara, Turkey

ABSTRACT

BACKGROUND: Cyberbullying, has concerned professionals due to increased use of media over time and as predicted, this type of bullying is fairly common among adolescents. We aimed to define the prevalence of cyberbullying and cyber victimization, examine relationships between problematic smartphone (SP) use (PSU), psychiatric symptoms and emotion regulation difficulties in a clinical adolescent sample. Also, we aimed to predict risk factors of being an E-Victim and E-Bully.

METHODS: One hundred and fifty adolescents have recruited the study. Demographic Information Form, Problematic Mobile Phone Usage Scale, Brief Symptom Inventory, Difficulties in Emotion Regulation Scale, E-Victimization–E-Bullying Scale were filled out by adolescents.

RESULTS: Our results indicated that the prevalence of cybervictimization and cyberbullying were 62.6% and 53.3%, respectively. BEVEB (Both E-Victim and E-Bully) group adolescents were older than NVB (Non-Victim/Bully) groups. Access internet via own SP, PSU, problems in strategies and impulse control and were significantly higher and "lack of awareness" scores were significantly lower in BEVEB group than others. In addition, when compared with OEV (only E-Victims) group, BEVEB group had also higher hostility scores. Logistic regression analysis revealed that high scores of "lack of awareness" and higher E-bullying scores increase the risk of being an E-Victim; and higher scores of hostility and E-victimization and lower scores of "lack of awareness" (in other words being more aware of feelings) increase the risk of being an E-bully.

CONCLUSIONS: According to analyses, contrary to our expectations, PSU was important but not an independent predictor of being an E-Victim/E-Bully. Our results also demonstrated an interesting finding: lack of awareness is a risk factor for being an E-victim. We interpreted this result as could not be aware of feelings increase the victimization risk. On the other hand, E-Bullies have higher hostility and victimization while having lower "lack of awareness" scores. It could be speculated that, re-victimization and being aware of hostility feelings could increase the cyberbullying among adolescents. In addition being an E-Bully could be a consequence of being an E-victim and increasing hostility and awareness over time. These results should be re-examined in larger clinical samples.

Introduction

Cyberbullying, the form of violence expressed through electronic media has concerned professionals due to easy access and increased use of media over time. As predicted, this type of bullying is fairly common among adolescents. Studies suggest that prevalence of cybervictimization ranging from 4 to 39% among teenagers [1–7]. In order to prevent adolescents from cyberbullying, risk factors must be known.

Until now, studies about the risk factors of cyberbullying generally addressed sociodemographic features and psychopathologies. Results had shown that cybervictimization is associated with gender differences,

socioeconomic status, parenting styles [8–11], and negative mental health consequences such as depression [7,12–15], social anxiety, low self-esteem, and affective disorders [16–19]. Although studies increase our knowledge on cyberbullying among adolescents, it has been observed that some of the risk factors and consequences of cyberbullying did not adequately addressed.

According to our observations, the first neglected topic is the characteristics of cyberbullies among adolescents. Although it could be predicted that this type of violence effects both cybervictims and cyberbullies [9], prevalence and mental health consequences of cyberbullies are still unclear in this age group.

The second neglected area is the effect of emotion regulation problems among adolescents with cyberbullying. Recent works suggest that exposure to stressful life events is associated with increases in emotion regulation problems among adolescents, prospectively [20]. Also, these problems predict the onset of psychopathologies including anxiety, depression, and externalizing behaviours [20–22]. So, could psychiatric symptoms are seen in cybervictim and cyberbully adolescents are associated with emotion dysregulation problems?

And the third neglected area is the effect of problematic smartphone use (PSU) on cyberbullying among adolescents. In recent years, access to the internet via smartphone (SP) has influenced social interactions among them. Studies showed that the number of cyber victims is increasing depending on the increase in having an own SP and PSU [23]. The term of PSU is defined as an inability to regulate one's use of the SP, which eventually involves negative consequences in daily life [24,25]. Supporting, in many studies, PSU has been linked with personality traits including neuroticism, impulsivity [26–28], depression–anxiety symptoms [29], irregular circadian rhythm, mental health problems, poor interpersonal relationship, and cyberbullying [23,30–32]. Recently, it was determined that hours of daily internet use on a mobile phone is independently associated with internet addiction and cyberbullying behaviours among middle and high school students [33] but the relationship between PSU, being a cybervictim/cyberbully and other risk factors including psychiatric symptoms, emotion regulation problems had not been investigated among adolescents until now.

The current study aimed to examine these neglected topics and relationships among a risky adolescent sample who were applied to psychiatry outpatient units for the first time. Our aims were:

A1: Determine the rates of Cyber-victims (E-victims) and Cyber-bullies (E-bullies) in this risky group.

A2: Identifying the characteristics and psychiatric symptoms of E-victims and E-bullies.

A3: To investigate the probable relationships between PSU, emotion regulation problems, psychiatric symptoms and cyberbullying. Also examined the predictors of being an E-victim/E-bully among a clinical adolescent sample.

We hypothesized that PSU, psychiatric symptoms and emotion regulation difficulties are increasing the risk of cyberbullying among adolescents.

Material and method

The research was approved by the Ethics Committee of Ankara University School of Medicine (Approval Date: 08.03.2016; Number: 46004091-302.14.061/E.37063). The inclusion criterion was being 12–18 years old, being in normal intelligence level according to clinical evaluation, referring to a psychiatry outpatient unit, having an own SP and agreeing to participate the study. Exclusion criterion was having autism spectrum disorder, chronic medical or neurological disease, mental retardation, have not an own SP, and do not want to participate the study. Participants were recruited from the adolescents those who were applied to the child and adolescent psychiatry outpatient units between May 2016 and February 2017. After first psychiatric evaluation by the authors, adolescents, and parents who met the criterion invited to the study. One hundred sixty-two adolescents and their parents agreed to participate and both adolescents and their parents signed the informed consent. Demographic Information Form, Problematic Mobile Phone Usage Scale (PMPUS), Brief Symptom Inventory (BSI), Difficulties in Emotion Regulation Scale (DERS), E-Victimization Scale (E-VS), and the E-Bullying Scale (E-BS) were given to the adolescents, but unfortunately, only 150 of them completed the whole and we analysed the data of these adolescents.

Our sample consisted of 150 adolescents who were aged between 12 and 18 years ($M = 15.4$, $SD = 1.4$), and 58.7% of the sample were girls. Maternal education was 3–15 years ($M = 7.4$, $SD = 3.2$) and paternal education was 5–15 years ($M = 8.6$, $SD = 3.2$). The majority of families were from medium socioeconomic status (96%).

Measurements

Demographic information form
This form consisted of questions that were prepared by the authors to obtain information about demographic characteristics (age, school, parental age and education, monthly household income, and marital status of parents).

Problematic Mobile Phone Usage Scale
This scale was developed by Augner and Hacker [34]. Excessive use of mobile phone, the relationship between mobile phone using and some mental health variables, and the negative effects that may arise from the long-term use of the mobile phone could measure by this tool. It consists of three parts; "addiction" (9 questions), "social relations" (7 questions), and "results" (10 questions). It is a Likert-type scale that is scored between 0 (no) and 4 (very frequent) points in the addiction and social relations section; 0–4 points (0 = strongly disagree, 4 = strongly agree) in the results section. The total score for the entire scale ranges from 0 to 104 (Over 30 points are regarded as problematic use). Taking a high score indicates that someone is having more problematic and addictive mobile phone use.

The Turkish validity and reliability study of the scale was made by Tekin et al. [35].

Brief Symptom Inventory

The BSI, developed by Derogatis (1992) for the purpose of screening various psychological indications, is the short form of SCL-90-R. Among the 90 items distributed over 9 factors of SCL-90-R, short form was obtained by selecting 53 items with the highest load in each factor. It is a 4 point Likert scale. The high scores on the total scores indicate the frequency of the individual's symptoms [36]. It has items for anxiety (13 items), depression (12 items), negative self (12 items), somatization (9 items), and anger/aggression (7 items). Turkish adaptation studies were made by Sahin and Durak (1994). In three separate studies conducted by them (4), the Cronbach Alpha internal consistency coefficients obtained from the total score were found to be 0.96 and 0.95, and the coefficients obtained for the subscales ranged from 0.75 to 0.88 [37].

Difficulties in Emotion Regulation Scale

DERS was developed by Gratz & Roemer (2004) to determine difficulties in emotion regulation. DERS consists of 36 items that are evaluated using a five-point Likert scale. The scale was adapted to Turkish by Rugancı and Gençöz [38] and consists of six dimensions: Awareness (Lack of emotional awareness), Clarity (Lack of emotional clarity), Non-acceptance (Non-acceptance of emotional responses), Strategies (Limited access to emotion regulation strategies), Impulse (Impulse control difficulties), and Goals (Difficulties engaging in goal-directed behaviour). The Turkish version of the scale's total Cronbach's Alpha reliability value was .94 and subscales' were between .75 and .90. Test–retest reliability was .83 and two half test reliability was .95.

E-Victimization Scale and E-Bullying Scale

This scale is a 6-point Likert-type scale created by Lam and Li in 2013 [39]. Each item is scoring between 0 (never) and 6 (6 or more times). There is not a cut-off point for the scale but when an item is scored as 1 or higher, it was interpreted as positive exposure of E-victimization/E-bullying. Higher scores mean more exposure to cyberbullying. Validity and reliability study for Turkish version was performed by Gençdoğan and Çikrikci. They conducted two separate studies. In study I, the factorial structure of E-BS was investigated by the adolescents with ages ranged between 14 and 19. Confirmatory factor analysis revealed an excellent model in this study. Then in study 2, the factorial structure of E-VS was examined with adolescents and demonstrated a single factor model that appeared a sufficient fit with data in confirmatory factor analysis. As for the reliability and convergent validity results, it can be stated that both of two instruments showed good internal consistency and test–retest reliability and psychometric properties have shown that both of two instruments are valid and reliable [40].

Statistical analysis

The sample was separated in four main groups according to E-VS and E-BS scores (For E-VS and E-BS scales, when an item scored as 1 or higher it was interpreted as positive exposure of E-Bullying and E-Victimization). Groups were named as follows: Only E-victims (OEV); Only E-Bullies (OEB), Both E-victims and E-Bullies (BEVEB); Non-victims/Non-Bullies (NVB). We used Kruskal Wallis Test to compare scale scores between the groups and for significant results we used the Mann–Whitney U test and Bonferroni corrections. We compared rates of PSU, access internet via own SP, having a Facebook or Twitter account and other demographic variables with Chi-square, Fisher's exact tests. In order to investigate the association between E-victimization/E-bullying and sociodemographic variables, scale scores, we used one-tailed correlation analyses. Then, univariate logistic regression analysis was performed with the variables thought to be risky for being an E-bully and an E-victim. And finally, we included variables which had unadjusted p-values <.10 in univariate logistic analysis and conduct Backwards LR multivariate logistic regression analysis model. Hosmer–Lemeshow goodness of fit statistics were used to assess fit. We used "5% type-1 error level" to infer statistical significance. A p-value <.05 was considered as significant.

Results

Comparison of sociodemographic variables, PSU ratios and scale scores of groups

We found significant differences in terms of age, access internet via own SP, and problematic SP use between subgroups. According to age: BEVEB group was significantly older than NVB group after Bonferroni corrections ($p = .01$). According to access internet via own SP and problematic use: There were significant differences between the groups ($p = .002$; $p = .001$, respectively). One hundred and twenty-four of them (82.7%) were accessing internet via SP and 12.9% of those who entered the internet with their own SPs were OEV, 8.1% were OEB, 51.6% were BEVEB, 27.4% were NVB. Seventy-six (50.7%) of them were using SP as problematic and 10.5% of those were OEV, 7.9% were OEB, 60.5% were BEVEB, 21.1% were NVB. The group of BEVEB who had the highest number of accessing internet via own SP and problematic use was left out of the analysis to understand which group the meaningful differences originated. We found that the significant

Table 1. Demographic characteristics of groups.

Characteristics	Only E-Victims (OEV) (n = 26)		Only E-Bullied (OEB) (n = 12)		Both E-Victims and E-Bullied (BEVEB) (n = 68)		Non-Victim Non-Bullied (NVB) (n = 44)		P-value and statistics
	n	%	n	%	n	%	n	%	
Gender									$x^2 = 1.679$ $df = 3.$ $p = .642$
• Male	8	(12.9)	6	(9.7)	29	(46.8)	19	(30.6)	
• Female	18	(20.5)	6	(6.8)	39	(44.3)	25	(28.4)	
Age (years); median (min-max)	**17(13–18)**		**15(14–17)**		**16(13–18)**		**15(13–18)**		**p .044**
Socioeconomic Status									
• Monthly income (lira); median(min-max)	2000 (1000–5000)		2000 (1300–3500)		2250 (1350–5000)		1750 (0–5000)		p = .104
• Maternal education (years) median(min-max)	5(5–15)		11(5–13)		5(3–12)		5(5–11)		p = .054
• Paternal Education (years) median(min-max)	8(5–15)		5(5–13)		8(5–15)		6.5(5–11)		p = .430
Problematic SP Use	**8**	**(10.5)**	**6**	**(7.9)**	**46**	**(60.5)**	**16**	**(21.1)**	**$x^2 = 15.566$ $df = 3.$ $p = .001$**
Access internet via own SP	**16**	**(12.9)**	**10**	**(8.1)**	**64**	**(51.6)**	**34**	**(27.4)**	**$x^2 = 15.22$ $df = 3.$ $p = .002$**
Have a FB account	22	(18.6)	8	(6.8)	56	(47.5)	32	(27.1)	$x^2 = 3.053$ $df = 3.$ $p = .383$
Have a Twitter account	6	(12.5)	2	(4.2)	28	(58.3)	12	(25)	$x^2 = 5.331$ $df = 3.$ $p = .149$

Note: Boldface values are p < .05.

differences between groups were lost ($p = .212$; $p = .763$, respectively) after BEVEB group left out. In this case, we interpreted the results as the significant differences are caused by the group of BEVEB (You can see the details in Table 1).

In Table 2, scale scores of groups were summarized. p-values were significant in terms of " Hostility," "Lack of Awareness," "Impulse control difficulties," "Limited Access to emotion regulation strategies," and PMPUS scores between groups. After Bonferroni corrections significant results were as follows:

• "Lack of Awareness": There was significant difference between OEV and BEVEB groups ($p = .003$). OEV groups had significantly higher scores. Also there was significant difference between BEVEB–NVB groups ($p < .000$), NVB group had significantly higher scores.
• "Limited access to emotion regulation strategies": BEVEB group had significantly higher scores than other groups ($p = .001$).
• "Impulse control difficulties": BEVEB group had significantly higher scores than OEV group ($p = .003$).

Table 2. The scale scores of groups.

	Only E-Victims (OEV) (n = 26) Median(min-max)	Only E-Bullied (OEB) (n = 12) Median(min-max)	Both E-Victims and E-Bullied (BEVEB) (n = 68) Median(min-max)	Non-Victim Non-Bullied (NVB) (n = 44) Median(min-max)	
BSI subscales					
• Somatization	5.5(1–17)	6.5(0–25)	14.5(0–25)	4.5(0–20)	p = .187
• Obsession–Compulsion	8(3–15)	9.5(5–12)	14(1–23)	9(1–21)	p = .373
• Interpersonal sensitivity	5(1–10)	6(0–14)	8(2–15)	6.5(1–14)	p = .460
• Depression	4(0–12)	10(0–21)	14(0–23)	9(0–24)	p = .078
• Anxiety	4.5(2–13)	5(4–18)	10(1–22)	7(0–24)	p = .137
• **Hostility**	6(0–15)	13.5(4–19)	13(3–19)	7(0–20)	**p = .035**
• Phobic anxiety	3(0–8)	3.5(0–13)	6(1–15)	5.5(0–15)	p = .298
• Paranoid ideation	4.5(2–14)	9.5(5–13)	11(1–16)	5.5(0–17)	p = .381
• Psychoticism	2.5(1–13)	5(0–12)	6(0–18)	6.5(0–16)	p = .929
• Others	4(2–8)	4(0–12)	8(0–14)	4.5(0–15)	p = .648
DERS subscales					
• **Lack of emotional awareness**	17(12–26)	16(11–20)	15(8–20)	16.5(13–22)	**p = .000**
• Lack of emotional clarity	12(8–16)	12(5–13)	14(7–18)	13(7–18)	p = .314
Non-acceptance of emotional responses	10(6–18)	11(10–18)	12(6–22)	12(6–24)	p = .540
• **Limited access to emotion regulation strategies**	14(11–30)	22(9–27)	25(11–35)	18.5(8–40)	**p = .005**
• **Impulse control difficulties**	12.5(8–25)	16(9–21)	20(9–26)	15(6–24)	**p = .006**
• Difficulties engaging in goal-directed behaviour	13(7–21)	15.5(5–21)	18(8–22)	18(6–21)	p = .271
PMPUS total score	26(4–51)	41(20–68)	40(6–78)	24(0–64)	**p = .004**

Notes: Mann Whitney U test was used.
Boldface values are p < .05.

- "PMPUS": BEVEB group had significantly higher scores than NVB group ($p = .002$).

Correlation analyses on the relationships between scale scores

We examined how E-bullying/E-victimization scores were related to in each other and to emotion regulation problems, PSU, and psychiatric symptom scores by Spearman correlation analyses. As summarized in Table 4, there were positive strong correlations between E-VS and E-BS; positive but varying grades correlations between PMPUS and DERS, BSI subscales; positive and strong-nearly strong correlations between DERS and BSI subscales except for DERS-Lack of Awareness. There were significant but negative correlations between DERS-Lack of Awareness and E-BS scores (Table 3), in other words, there is a positive relationship between awareness and E-bullying.

Which variables predict E-victimization and E-bullying among adolescents?

We explored the differences in demographic variables, access internet via own SP, having a FB or Twitter account, psychiatric symptoms, emotion regulation difficulties, PMPUS scores and E-Victimization/E-bullying scores of E-victim and E-bullies adolescents. We take OEV–BEVEB groups as E-Victims and OEB–BEVEB groups as E-Bullies.

As summarized in Table 4, according to univariate logistic analyses, significant differences at $p < .1$ level were found between age, monthly income, have a FB and Twitter account, "Lack of awareness" scores, PMPUS scores, and E-Bullying scores with being an E-Victim. In addition, significant differences at $p < .1$ were found between access internet via own SP, somatization, obsession, depression, hostility, paranoid ideation, "lack of awareness" lack of strategies, lack of impulse control, PMPUS, and E-Victimization scores with being an E-bully. A multivariate logistic regression model (Backward-LR) was used to identify independent predictors of being an E-victim or E-bully for the adolescents. Analysis revealed that higher scores of "lack of awareness," and higher E-bullying scores increase the risk of being an E-Victim; and higher scores of hostility and E-victimization and low scores of "lack of awareness" (in other words, being more aware) increase the risk of being an E-bully. Results are given in detail in Table 5.

Discussion

Our results indicated that the prevalence of cybervictimization and cyberbullying were 62.6% and 53.3%, respectively. BEVEB (Both E-Victim and E-Bully) group adolescents were older than NVB (Non-Victim/Bully) groups. Access internet via own SP, problematic SP use, problems in strategies and impulse control and awareness were significantly higher in BEVEB group than others. In addition, when compared with OEV group, BEVEB group had also higher hostility scores.

Logistic regression analysis revealed that higher scores of "lack of awareness" and higher E-bullying scores increase the risk of being an E-Victim; and higher scores of hostility and E-victimization and lower scores of "lack of awareness" (in other words being more aware) increase the risk of being an E-bully.

In this part of the paper, we will discuss our results within three major subtitles: (i) The Prevalence and Socio-demographics of E-Victims and E-Bullies (ii) Psychiatric Symptoms, Emotion Regulation Problems among E-Victims and E-Bullies, and (iii) Relationship Between PSU and Cyberbullying–Cybervictimization.

The prevalence and socio-demographics of E-victims and E-bullies

Our results indicated that the prevalence of total E-Victims were 62.6% and the prevalence of total E-Bullies was 53.3% in this clinical group from Turkey. BEVEB group adolescents were older than NVB groups. Access internet via own SP and problematic SP use were significantly higher in BEVEB group.

As predicted, the prevalence of cyberbullying in a clinical adolescent sample was higher than previous studies conducted among non-clinical adolescents sample from other cultures (cyberbullying ratios were 6–33% among non-clinical adolescent samples from US, Canada, and China [41–43], and from high school students (32–65% of students were cybervictims and 26–46% of them had cyberbullied others [9,44] in Turkey. The high rates suggest that cyberbullying and cybervictimization are important problems among adolescents who applied to psychiatry outpatient units and this current issue should be addressed in the psychiatric examinations of adolescents.

Risk factors for cybervictimization and cyberbullying have been evaluated in many studies until the early of the 2000s. One of these risk factors is gender. As mentioned above, we did not find a difference between genders according to being an E-victim or an E-Bully in our sample. Some studies with non-clinical samples indicated that girls do more cyberbullying than boys [8,9,45,46]. On the other hand, there are some studies indicating that boys do more cyberbullying than girls [10,47–49]. In terms of cybervictimization there are some studies reporting that girls are more exposed to cyberbullying [1], while some others report no difference between girls and boys [50]. The challenges might be due to the fact that cyberbullying

Table 3. Correlations of scale scores.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. E-VS	1																	
2. E-BS	.68**	1																
3. PMPUS	.24**	.25**	1															
4. DERS-A	.23**	−.47**	−.03	1														
5. DERS-C	.03	.10	.34**	.03	1													
6. DERS-NA	.15	.13	.22*	−.07	.23**	1												
7. DERS-S	.27**	.28**	.56**	−.11	.48**	.52**	1											
8. DERS-I	.23**	.31**	.60**	−.07	.45**	.29**	.71**	1										
9. DERS-G	.19*	.14	.50**	−.008	.34**	.45**	.78**	.59**	1									
10. BSI-S	.23**	.21**	.64**	.04	.47**	.37**	.62**	.60**	.49**	1								
11. BSI-OC	.13	.17*	.53**	−.17*	.52**	.42**	.70**	.60**	.58**	.77**	1							
12. BSI-IS	.05	.07	.47**	−.01	.47**	.43**	.73**	.60**	.59**	.74**	76**	1						
13. BSI-D	.11	.17*	.52**	−.09	.54**	.39**	.72**	.65**	.57**	.74**	70**	.85**	1					
14. BSI-A	.14	.13	.54**	−.08	.44**	.44**	.71**	.73**	.49****	.79**	79**	.88**	.86**	1				
15. BSI-H	.14	.21**	.60**	.01	.27**	.34**	.59**	.73**	.51**	.72**	56**	.65**	.70**	.76**	1			
16. BSI-PA	.06	.09	.54**	.03	.48**	.37**	.65**	.64**	.49**	.76**	75**	.80**	.82**	.84**	.64**	1		
17. BSI-PI	.14*	.13	.61**	−.02	.48**	.35**	.69**	.70**	.59**	.74**	77**	.75**	.80**	.88**	.68**	.80**	1	
18. BSI-P	.13	.14*	.54**	−.17*	.37**	.41**	.62**	.54**	.57**	.78**	72**	.77**	.81**	.78**	.66**	.73**	.73**	1

Note: Spearman correlations.
**Correlations are significant at .01 level (one-tailed).
*Correlations are significant at .05 level. (one-tailed).

Table 4. Effects of various variables on being an E-Victim or E-Bullied of adolescents in univariate logistic regression analyses.

Variables	E-Victim		E-Bullied	
	OR (CI 95%)	p-value	OR (CI 95%)	p-value
Male gender	0.80 (0.41–1.57)	.52	1.23 (0.64–2.38)	.52
Age	0.75 (0.61–0.93)	**.01**	0.89 (0.73–1.08)	.25
Monthly income	1.00 (0.99–1.00)	**.06**	1.00 (0.99–1.00)	.27
Maternal education	0.99 (0.88–1.11)	.87	0.93 (0.83–1.04)	.21
Paternal education	0.91 (0.82–1.02)	.13	0.98 (0.88–1.09)	.80
Access internet via own SP	1.55 (0.66–3.66)	.30	4.93 (1.85–13.14)	**.001**
Have a FB account	1.95 (0.88–4.30)	**.09**	0.84 (0.38–1.84)	.67
Have a Twitter account	1.7 (0.81–3.55)	.15	1.73 (0.85–3.49)	.12
BSI				
• Somatization	0.97 (0.93–1.02)	.34	0.94 (0.89–0.99)	**.02**
• Obsession	0.97 (0.91–1.03)	.34	0.95 (0.90–1.01)	**.1**
• Interpersonal sensitivity	1.00 (0.93–1.08)	.88	0.95 (0.88–1.03)	.24
• Depression	1.01 (0.96–1.06)	.61	0.95 (0.91–1.00)	**.07**
• Anxiety	1.00 (0.94–1.05)	.97	0.97 (0.92–1.02)	.29
• Hostility	0.98 (0.93–1.04)	.71	0.92 (0.86–0.97)	**.007**
• Phobic anxiety	1.03 (0.96–1.10)	.36	0.97 (0.90–1.04)	.42
• Paranoid ideation	0.99 (0.92–1.05)	.76	0.94 (0.88–1.01)	**.09**
• Psychoticism	1.00 (0.93–1.07)	.95	0.97 (0.91–1.04)	.51
DERS				
• Lack of awareness	1.12 (1.02–1.23)	**.012**	1.29 (1.14–1.46)	**<.001**
• Lack of emotional clarity	1.01 (0.90–1.14)	.78	0.98 (0.87–1.10)	.79
• Non-acceptance of emotional responses	1.00 (0.91–1.08)	.99	0.96 (0.89–1.05)	.46
• Limited access to emotion regulation strategies	0.98 (0.93–1.03)	.58	0.92 (0.87–0.97)	**.004**
• Impulse control difficulties	0.95 (0.89–1.01)	.147	0.89 (0.83–0.96)	**.002**
• Difficulties engaging in goal-directed behaviour	1.00 (0.92–1.08)	.90	0.94 (0.87–1.02)	.16
PMPUS	0.97 (0.95–0.99)	**.025**	0.96 (0.94–0.98)	**<.001**
E-BS/E-VS	0.55 (0.40–0.75)	**<0.001**	0.75 (0.67–0.85)	**<.001**

Note: Boldface values are *p* < .1.

includes relational bullying behaviours and relational bullying is also related to raising under different societies. Like the cultures in Turkey, girls are raised more discipline and expected to control their aggressive behaviours than boys, so cyberbullying could be a compensation mechanism of aggressiveness in the virtual world [9,51]. But in a clinical sample with psychiatric symptoms, the influence of the culture seems to be losing its effect. In addition, according to our logistic regression analyses, being an E-victim or an E-bully seems to be a predictor in each other, except gender, so unlike the traditional bullying types, this comorbidity should be taken into account when addressing the behaviour pattern of adolescents.

Table 5. Effects of various variables on E-Victimization and E-Bullying of adolescents in multivariate logistic regression analyses.

Statistically significant variables	Adjusted OR*	95% CI	p-value
Being an E-Victim[a]			
Lack of awareness (↑)	.60	.42–.87	**.007**
E-BS (↑)	.52	.33–81	**.004**
Being an E-Bullied[b]			
Hostility (↑)	.76	.62–.92	**.007**
Lack of awareness (↓)	1.35	1.12–1.63	**.001**
E-VS (↑)	.76	.65–.89	**.001**

Notes: Backward-LR model was used for logistic regression analyses.
Boldface values are *p* < .05.
[a] Adjusted for age, monthly income, have FB account, have Twitter account, Aware scores, PMPUS scores, and E-BS scores according to univariate analyses in Table 4. OR: Odds Ratio. CI: Confidence interval. (Variables with a *p*-value of less than .10 were analysed).
[b] Adjusted for somatization, obsession, depression, hostility, paranoid ideation, aware, strategies, impulse, PMPUS, E-VS scores, and access internet via own SP according to univariate analyses in Table 4. OR: Odds Ratio. CI: Confidence interval. (Variables with a *p*-value of less than .10 were analysed).

There are some studies demonstrated significant relationships between cyberbullying and low monthly income/paternal unemployment [52], low educational status of parents [53], parenting styles [11] and high frequency of visiting social networking sites [54]. Our results did not support the results of previous studies. Firstly, in our sample, there was not any difference according to monthly incomes and parental education level. Supporting our results, there are studies that indicate no relationship between economic level and cyberbullying. However, some studies revealed a positive or negative relationship between monthly income and cyberbullying. It is observed that the authors put forward two basic views on this issue. The first group author stands up for a negative relationship. They suggested that in families with low socioeconomic status, low awareness of parents could increase the children's problematic internet use. On the other hand, another group of authors argues that as technology has become cheaper, monthly income will no longer be a risk factor for cyberbullying [4,9,50,55]. At this point, the results of our study also present a significant and current problem of adolescents, PSU. As shown in our study, PSU is a major problem in BEVEB groups of adolescents. May be, the relationship between cyberbullying and monthly income could be a consequence of having own SP, using it in a problematic way or not. In this regard, we need further work in non-clinical adolescents sample that addresses the effects of family income on having a SP and PSU.

Secondly, we did not find any differences in terms of having social network sites (SNSs) accounts between

groups. Having a social media account is mentioned as a risk factor in recent studies. Using SNSs more than three hours in a day, sharing personal information on these websites, playing online games via SNSs are increasing the risk [56–58]. We did not find any differences according to having a SNSs account. Consistently, in a recent study we found that problematic FB use (overuse/dependence) is associated with having fake accounts [59]. These results suggest that E-victimization/E-bullying is about the styles of using SNSs. So, preventing adolescents from cyberbullying, could it be useful to allow only sites that they can enter using their real identity?

Psychiatric symptoms, emotion regulation problems among E-victims and E-bullys

We would like to underline that our sample is composed of adolescents who refer to the psychiatry outpatient units and as expected psychiatric symptom scores were high. It would be appropriate to use these results in order to distinguish the adolescents who are at higher risk for cyberbullying/cybervictimization in clinical practice.

Our results indicated that BEVEB group had significantly higher problems in strategies, impulse control, and problematic SP use and they had higher awareness. In addition, when compared with OEV group, BEVEB group had also higher hostility scores.

According to recent studies and a systematic review, headache, high levels of perceived difficulties, behaviour problems, hyperactivity, reduced pro-social behaviours including breaking rules, acting hostile towards individuals who are around them, experience psychological maladjustment, exhibit aggressiveness [15,60–63], emotional stress [60,61,64], depression [65,66], and substance use [67] are higher among adolescents with cyberbullying behaviours. Our results are in accordance with these results. On the other hand, we showed correlations between psychiatric symptoms-DERS scores and EVS–EBS scores. In addition, our results demonstrated that being an E-Victim, having higher hostility scores and more awareness for the emotions are positive predictors of being an E-bully.

Recent works suggest that exposure to stressful life events and peer victimization is associated with increases in emotion regulation problems among adolescents, prospectively [20]. Also, these disruptions in emotion dysregulation have been demonstrated to predict the onset of psychopathological symptoms in adolescents including anxiety, depression, and externalizing behaviours [20–22]. According to the results of the recent works, we thought that emotion dysregulation may represent a mechanism linking stressful life events and cyber victimization to the onset of psychopathologies and cyberbullying behaviours among adolescents. But our results did not

support this hypothesis, conversely emotion dysregulation problems, except "lack of awareness," were not a positive predictor of being an E-victim/E-bully. Our results also demonstrated an interesting finding: lack of awareness is a risk factor for being an E-victim. We interpreted this result as, could not be aware of feelings increase the victimization risk. On the other hand, E-Bullies have higher hostility and victimization while having lower "lack of awareness" scores. It could be speculated that re-victimization and being aware of hostility feelings could increase the cyberbullying among adolescents. In addition being an E-Bully could be a consequence of being an E-victim, and increasing hostility and awareness over time. These results should be re-examined in larger clinical samples.

Relationship between PSU and cyberbullying-cybervictimization

Our results demonstrated that there are positive relationships between PSU and E-victimization–E-bullying scores. Supporting our results, a recent school-based study with mid and high school students from Greece was found that the hours of internet surfing from a mobile phone and internet addiction scores were associated with both victims and perpetrators profiles [33]. In addition, a study from South Korea also demonstrated that younger secondary school students who spend more time playing games on weekdays while being more confident in cyberspace and active in using mobile phones are more likely to be involved in cyberbullying than other students [68]. These results showed that the high penetration of internet access through SPs is a rapidly increasing risk factor for cyberbullying among adolescents but our results also point to another area: the relationship between PSU and psychiatric symptoms – emotion regulation problems are stronger than the relationship between PSU and E-VS/E-BS, alone. And according to logistic regression analyses, contrary to our expectations, it was not an independent predictor of being an E-Victim/E-Bully. This suggests that emotion regulation problems and psychiatric symptoms could be both risk factors for PSU and cyberbullying/cybervictimization. Parents of risky adolescents should be educated on safe mobile phone and internet use.

Conclusion

Our results must be evaluated in light of limitations. Firstly, due to a cross-sectional design, and medium socioeconomic status of the sample, it is not possible to comment on causality and generalize the findings. Secondly, the data for cyberbullying, emotion regulation problems, psychiatric symptoms, and PSU were collected by self-reports and we did not get

information from other sources (i.e. parents, teachers, etc.). It reduced external validity and there could be reporting and recall bias. Thirdly, it would be useful to address the diagnoses of adolescents (e.g. ADHD, depression, anxiety disorders, obsessive compulsive disorder, etc.) rather than measuring psychiatric symptoms. We want to underline that big sample sizes and case-control studies are needed to determine relationships between problematic smart mobile phone use–psychopathologies–cyberbullying. We hope that our study would be a first step to increase clinicians' awareness of the issue and be a starting point for future studies.

Despite these limitations, the results of this study have improved our understanding of the risk factors of being an E-Victim or an E-Bully among adolescents. We hope that our results can be helpful and have implications for psychoeducation in this group.

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Disclosure statement

ORCID

Hesna Gül 🄳 http://orcid.org/0000-0002-1696-1485
Mehmet Sertçelik 🄳 http://orcid.org/0000-0001-7031-3318
Ahmet Gül 🄳 http://orcid.org/0000-0002-7723-3027

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