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Original Article

Risk Factors Associated with Cyberbullying, Cybervictimization, and Cyberbullying-Victimization in Iran's High School Students

Mohammad Saeed Azami[1], Farhad Taremian[1,2*]

Abstract

Objective: This study aimed at finding the risk and protective factors of cyberbullying.
Method: A total of 425 high school students (199 boys and 226 girls) were selected using a cluster randomized procedure. The risk and protective factors included gender, internet use, self-esteem, dark triad traits (Machiavellianism, narcissism and psychopathy), school bullying perpetration, school bullying victimization, interparental conflict, and school climate.
Results: The results of multinomial logistic regression showed that being male, school bullying perpetration, and school bullying victimization can significantly increase the chances of being a cyberbully-victim and spending one hour or less on the internet can significantly decrease the chances of being a cyberbully-victim.
Conclusion: This study provides important implications for any prevention and intervention programs for cyberbullying, which must consider the roles of traditional bullying, gender differences, and internet use in cyberbullying behavior.

Key words: *Bullying; Cyberbullying; Internet Use; Machiavellianism; Narcissism; Sex; Self-Esteem; Students*

1. Department of Clinical Psychology, University of Social Welfare and Rehabilitation Science, Tehran, Iran.
2. Substance Abuse and Dependence Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

***Corresponding Author:**
Address: Department of Clinical Psychology, University of Social Welfare and Rehabilitation Sciences, Koodakyar Street, Daneshjoo Street, Tehran, Iran, Postal Code: 1985713834.
Tel: 98-21 1985713834, Fax: 98-21 1985713834, Email: fa.taremian@uswr.ac.ir

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In the past centuries, the progress in technology affected many aspects of human life. Communication also benefits from this progress, and we can see that phones, especially cell phones in the last decades, changed people's life. Then comes the internet with its amazing communication utilities like email, social networks, and online messaging services that pushed the communication possibilities forward. These services allow people to remain in touch with family and friends from anywhere and establish friendly relationships with people around the world. Although these services seem very useful, they have their own disadvantages. Threatening or mocking messages, insults, and obscenity are only a few cases of cyberbullying. Juvonen and Gross (1) defined cyberbullying as using digital communication tools to insult or threaten someone. Cyberbullying is also defined as a violent, deliberate act performed by a group or an individual again and again or over time, via electronic devices, against victims who cannot easily defend themselves (2). Conceptual definitions of cyberbullying have minor differences, but most of them refer to its hostile, repetitive, and willful nature, which is similar to the definition of traditional (school) bullying (repetitive and harmful act that includes imbalance of power (3)), but cyberbullying occurs through electronic devices. Research shows that many students get involved in cyberbullying. A study reports that 6.3% of students were cyberbullies, 14.6% cyber victims and 13.1% cyberbullying victims (those who perpetrate cyberbullying and are its victims) (4). In another study, 7.4% of students were cyberbullies, 4.8% cyber victims and 5.4% cyberbully victims (5). A study in Iran indicated that 11.1% of boys and 4.4% of girls were cyberbullies, and 18.9% of boys and 2.2% of girls were cyber victims (6).

In the recent years, many researchers tried to find the risk and protective factors of cyberbullying to figure out what variables are associated with cyberbullying. One of the variables studied by many researchers is gender differences. In Aricak's research (7)), results indicated that boys bully someone in cyberspace more than girls do, but another study (8) shows that there is no notable gender differences in cyberbullying, but it is possible for girls to experience more cyberbullying victimization. Chan and La Greca (9) revealed that girls experience cybervictimization more than boys. A research revealed that there is no gender difference in cybervictimization (10). Literature shows that although gender differences were studied so many times, the results are inconsistent (10-12). A study in Iran indicated significant gender differences between traditional, cyber, and social media victimization, and traditional and cyber bullying (6).

Internet use is another variable studied in some pieces of research. Festel, Scharkow, and Quandt (13) said that cyberbullying is strongly related to social media usage, and the chances of cybervictimization increase by spending more time on the internet. Balakrishnan reported that most cyberbullies spent two to five hours per day on the internet, with the lowest rate of cyberbullying being among those who spent less than one hour per day on the internet (14). A review showed that spending more hours on the internet is a risk factor for cyberbullying and cybervictimization (15). Interestingly, in the study by Savoldi and Ferraz de Abreu (16), those who had a moderate use of the internet, compared to those who excessively used the internet, experienced more cybervictimization.

Some psychological factors such as self-esteem have been related to the probability of being a victim of cyberbullying. Victims of cyber aggression often have a lower self-esteem (17). A study indicated a notable difference between the self-esteem of cyberbullies, cyberbully-victims and cyber victims (10). Brewer and Kerslake (18) reported that self-esteem is a significant predictor of cyberbullying and has a negative relationship with it. However, in another study, no significant relationship was found between these two (12). In some studies, self-esteem was proven to be a protective factor against cybervictimization (11) and there was a positive relationship between low self-esteem and cybervictimization (12). A review indicated that high self-esteem is a shielding factor and low self-esteem is a risk factor for cyberbullying and cybervictimization. Additionally, low self-esteem can be a predictor or an outcome of cyberbullying (15). Some researchers argued that the association of self-esteem with other variables that also related to cybervictimization, such as school victimization or the frequency of internet use, makes it interesting to analyze their individual effect as risk factors of cybervictimization (11).

In the recent years, researchers have been more interested in the roles of Dark Triad personality traits (Machiavellian, Narcissism and Psychopathy) in cyberbullying behaviors. Machiavellian is a tendency to be distrustful, unfriendly, cold, pragmatic, detached affect, chasing self-beneficial goals (eg, power and money) (19). From theoretical point of view on Machiavellianism, ones with higher rates on this trait may bully others in the cyberspace to keep or setup their position in their social network due to the lower risks associated with these kinds of actions and their great effect on their social network (20). Theoretical views on the traits related to narcissism comprise grandiosity, entitlement, dominance, and superiority (21). Individuals with high narcissistic traits may bully others in the cyberspace because of feeling socially invulnerable (20). Psychopathy is associated with traits such as impulsivity and low levels of empathy (21). Psychopathy had been linked to bullying acts in adults (22); also the low levels of empathy that a psychopathic person shows, has been linked to aggressive behaviors (23). In the study done by Goodboy and Martin (24), dark triad traits had a positive relationship with cyberbullying and psychopathy could significantly be used to predict cyberbullying. A

research work by Kircaburun, Jonason, and Griffiths (25) revealed that sadism, Machiavellian, and psychopathy have a positive relationship with cyberbullying. Unfortunately, we cannot find a study that examines the roles of the dark triad traits or their relationship with cybervictimization and being a cyberbully-victim; thus, we decided to examine the possible association of dark triad traits with cyberbullying.

Some researchers try to find out whether the roles that a person has in school bullying can predict his or her role in cyberbullying. The study by Raskauskas and Stoltz (26) shows that the student roles in school bullying signaled the same role in cyberbullying. Furthermore, being a cyber victim was related to school bullying perpetration, but school victims were not cyber bullies. The results found by Kowalski, Morgan and Limber (27) indicated that more involvements in school bullying was associated with higher rates of their cyber counterparts, and the relationship between school bullying perpetration and victimization was stronger for girls, similar to the effect of school victimization on cybervictimization. In a review (28), the strongest risk factor for cyberbullying was found to be school bullying. Due to the above-mentioned results, some researchers argued that cyberbullying is a problem related to school, and there is no need to blame families for it. They say that cyberbullying happens in home (29) but things that happen in school lead to cyberbullying (30). However, the results of another study revealed that school and cyber bullying have different predictors, and the authors noted that these differences should be considered in every intervention program (31). Waasdorp and Bradshaw (32) argued that there is an overlap between school and cyberbullying, but cyberbullies may not be school bullies. It seems that these two are separate, but they are related. In this study, we inspected the role of both school bullying perpetration and victimization in cyberbullying.

There is another opinion about cyberbullying, which argues that it is indeed a family matter. In a study, cyberbullying was related to family conflict (33), and some researchers argued that family factors seem to be related to cyberbullying, since the problem occurs outside the school (34), and this could mean that cyberbullying holds a weak connection to school factors (35). However, in a study, family conflict couldn't signal cyberbullying (36). To understand the effect of family and school factors in cyberbullying, we decided to examine the role of interparental conflict alongside school bullying.

A few studies examined the role of school climate in cyberbullying. In a study on Spanish students, school climate, internet addiction, empathy, and school bullying explained 69% of the cybervictimization and 19% of the cyber aggression variance (37). Williams and Guerra (38) noted that if school climate is trusting, fair, and pleasant, it can decrease the cyberbullying rates to 9%. The results of a review and meta-analysis showed that a negative school climate is a risk factor for cyberbullying (39). In another study, negative school climate could not significantly signal cyberbullying, cybervictimization, and cyberbully-victim (8). We could not find any other research that examined the role of school climate in being a cyberbullying victim .

We decided to study the above-mentioned risk factors for cyberbullying in high school students, as the literature shows that the results of some risk factors are inconsistent and only a few studies have been conducted on the risk factors of cyberbully-victims. Therefore, in summary, we examined the roles of gender, internet use, self-esteem, dark triad traits, school bullying, interparental conflict, and school climate as the risk factors for cyberbullying, cybervictimization, and being a cyberbullying victim.

Materials and Methods

Participants and Procedure

This cross-sectional study was administered in 2019. In this study, the sample size should be 384 students. This is due to the 10% prevalence of cybernetic victimization, which was reported by Arabshahi et al (6), Z = 1.96 and d = 0.03. However, as we considered 10% for sample shedding, the final sample was comprised of 425 students from six high schools in Kermanshah, Iran. Kermanshah has three urban areas, and due to gender separation in Iranian schools, we randomly picked two high schools in every urban area (one for girls and one for boys) and three classes in every school (for each grade we choose one class). Eventually, we pick 18 classes in six separate high schools with the randomized cluster sampling method. A total of 226 students (53.2%) were girls and 199 were boys (46.8%). The mean age in the sample was 16.61 and the standard deviation was 0.95. Before starting the survey, we obtained the informed consent from the school and all the students. Moreover, we informed the students that they were free to decline or stop their participation at any time without any penalty. We also stated that any information that students provided would not be leaked to anyone. Participants completed the paper-pencil questionnaire written in Persian during one hour of class.

Measures

Internet Use

For measuring the internet use, we only asked one question "How much time do you usually spent in internet every day?" Respondents were asked to show the times that they spent on the internet on a three-point scale (1: one hour or less; 2: two to seven hours; and 3: more than seven hours).

Cyberbullying

Students completed a Persian version of E-Victimization Scale (E-VS) and the E-Bullying Scale (E-BS) (40). This questionnaire has five questions about cybervictimization and six questions about cyberbullying. Sample questions

include "How many times did someone tease you using emails, texting, or social networks?" and "How many times did you say mean things about someone using emails, texting, or social networks?" Students were asked to show the number of times they had involved in cyberbullying or being victims in the past two months on a five point scale (1: never; 2: one to five times; 3: six to 10 times; 4: 11 to 20 times; and 5: more than 20 times). We converted the primary time range (past week) to last two months to adjust with the time range in school bullying questions, and because of that, we also converted the primary two-point scale (zero to six times and more than six times) to a five-point scale. In 2013, Lam (one of the questionnaire authors) suggested that each scale be dichotomized into two categories as engaged in cyberbullying and never for the E-BS, and being a victim and never for the E-VS; thus, a blended variable could be generated from these two exposure variables with four groups: bully-victim; victim; bully; and not involved (41). This questionnaire had been validated in Iran, and the Cronbach's alpha for the victim scale was 0.87 and was 0.84 for the bully scale (42). Cronbach's alpha for both subscales in this study was 0.85.

Self-esteem

Students completed Rosenberg's Self-esteem Scale (43), which evaluate the feeling of self-worth using items like "I feel that I have a number of good qualities." Students responded along a four-point scale from strongly disagree (one) to strongly agree (four). In Iran, Shapurian, Hojat, and Nayerahmadi (44) examined the psychometric characteristic of the Persian version of the Rosenberg Self-esteem Scale and reported that the alpha reliabilities supported the internal consistency of the scale. Test-retest reliabilities showed the stability of the scores, and correlations between the scores of the scale, and the criterion measures supported the concurrent validity of the scale. Also, the results of the factor analysis of the Rosenberg scores confirms that the scale is unidimensional. In this study, Cronbach's alpha was 0.85.

Dark Triad Traits

The Dark triad traits were measured using the Paulhus Dark triad of personality short form (D3-Short). This instrument has 27 items and measures the traits of Machiavellianism (nine items, eg, "It is not wise to tell your secrets."), narcissism (nine items, eg, "Many group activities tend to be dull without me."), and psychopathy (nine items, eg, "People who mess with me always regret it."). Participants were asked to indicate the degree each item applied to them using a five-point response format, ranging from one (strongly disagree) to five (strongly agree). In Iran, Amiri and Yaghoubi (45) examined the psychometric properties of this questionnaire and reported that the results of the confirmatory factor analysis supported the factor structure of the questionnaire. Additionally, Cronbach's alpha for Machiavellianism, narcissism, and psychopathy was 0.71, 0.82, and 0.69, respectively. In this study, in order to reach the 0.7 level for Cronbach's alpha, we removed one item from narcissism and psychopathy subscales. For this study, Cronbach's alpha for Machiavellianism, narcissism, and psychopathy was found to be 0.73, 0.70 and 0.71, respectively.

School Bullying

Students completed six questions about school bullying from Revised Olweus Bully/Victim Questionnaire (46). Three of them were about perpetration (eg, "I hit, kicked, pushed, and shoved him or her around or locked him or her indoors."), and the other three questions measured victimization (eg, "I was threatened or forced to do things I didn't want to do.") in school bullying. Respondents were asked how frequently they engaged in school bullying behavior: never, once or twice, two or three times a month, about once a week or several times a week in the past two months. In Iran, Rezapour, Soori, and Khodakarim (47) validated the bullying perpetration and victimization scales of the Olweus Bullying Questionnaire and described that the values of the reliability test-retest indicated a good level of both in these scales. In addition, Cronbach's alpha for victimization and perpetration subscales was 0.80 and 0.82, respectively. In this study, Cronbach's alpha for perpetration and victimization was 0.75 and 0.73 respectively.

Interparental Conflict

Students completed the frequency subscale of Children's Perception of Interparental Conflict Scale (CPIC) by Grych, Seid, and Fincham. This subscale consists of six items, such as "I often see my parents arguing" with a three-point scale of false meaning 0, sort of true meaning 1, and true meaning 2. Internal consistency (coefficient alpha) had been evaluated at both the scale and subscale level in two samples, and the test-retest reliability had been evaluated for the three superordinate scales. The proof for the validity of the scale is found in notable correlations with parental reports of marital conflict, and notable links to children's reports of their responses to specific episodes of conflict (48). In Iran, Allipour Birgani, Zeqeibi ghannad and Joulaian (49) reported that Cronbach's alpha for this scale was 0.90, while Cronbach's alpha was 0.78 in this study.

School Climate

Students completed the School bonding subscale of Community Drug and Alcohol Survey (CDAS). This subscale has four items, such as "I like school" with a four-point scale from "not at all" to "a lot." A study reported that this subscale's internal consistency was 0.77 (50). In this study, Cronbach's alpha was found to be 0.76.

For analyzing data, we use frequency, percentages, mean, standard deviation, and multinomial logistic regression in the 23rd version of the SPSS software.

Ethics

The permission to conduct this study was confirmed by the research ethics committee of the University of Social Welfare and Rehabilitation Sciences. The ethics code is IR.USWR.REC.1397.117. Furthermore, the Education and Training Administration of Kermanshah province gave us the permission to conduct this study in Kermanshah's high schools.

Results

A total of 404 students responded to the questions providing useful information. This represented a 95% response rate. The demographic characteristic of the sample represented in Table 1 shows 46.5% of the sample as boys and 53.5% as girls. About 60% of the students had an average socioeconomic status, and 75% of them owned smartphones. More than 90% of respondents lived with their mother or father at home. More than half of them spent two to seven hours per day on the internet.

The prevalence of cyberbullying is represented in Table 2 and it shows half of students did not experience any cyberbullying or victimization in the last two months (n = 202, 50.0%). Also, 44 respondents (10.9 %) reported to be victims of cyberbullying (cyber victims only) 31 respondents (7.7%) admitted that they had bullied others (cyberbullies only), and 127 respondents (31.4%) reported to be both bullies and victims (cyberbully-victims).

Table 3 represents descriptive statistics for adolescent risk and protective factors in categorical measures and shows that most of the not involved and victim-only groups were girls, and most of the bully-only and bully-victim groups were boys. About 25% of students (n = 99) had been bullied by someone in school, 23% of the students (n = 90) were bullies, and between 34% to 38% of school bullies and victims were cyberbully victims, but most of those who either were involved or not involved with cyberbullying were not perpetrators or victims of school bullying. Additionally, most of the students who spent more than seven hours on the internet were in the bully victim group, and many of those who spent less than one hour on the internet were not involved in cyberbully.

The results of the mean and standard deviation of each group for self-esteem, dark triad traits, interparental conflict, and school climate are represented in Table 4 and show that those who are not involved with cyberbully had higher self-esteem (mean = 30.06), a better school climate (mean = 10.89), and lower Machiavellian (mean = 28.66) and psychopathic traits (mean = 18.23). Interestingly in comparison with other groups, the bully-only group had the lowest interparental conflict (mean = 9.07) and the worst school climate (mean = 9.43), and the victim-only group showed the lowest narcissism traits (mean = 23.73). The bully-victim group had the lowest self-esteem (mean = 28.33) and the highest narcissism (mean = 25.89) and psychopathic traits (mean = 22.68), and interparental conflicts (mean = 10.93).

The results of the multinomial logistic regression analyses were presented in Table 5 the results suggested that boys were 1.8 (OR = 1.792) times more likely to be cyberbully victims than girls (P = 0.04), but gender differences could not significantly increase the chances of cyberbullying or cybervictimization on their own. Students who were involved in school bullying as a victim were two times (OR = 2.034) more likely to be cyberbully victims than those who did not experience school victimization (P = 0.02), but school victimization could not significantly increase the chances of cyberbullying or cybervictimization as such. Students who bullied others in school were 2.7 times (OR = 2.744) more likely to be cyberbully victims than those who did not bully at school (P = 0.003), but school bullying perpetration could not significantly increase the chances of cyberbullying or cybervictimization by itself. Moreover, those who spent one hour or less on the internet every day were less likely to be cyberbully victims compared to those who spent more than seven hours on the internet every day (OR = 0.21, P = 0.001) However, the internet use could not significantly increase or decrease chances of cyberbullying or cybervictimization as such. Other variables (self-esteem, Machiavellian, narcissism, psychopathy, inter-parental conflict and school climate) could not significantly increase or decrease the chances of cyberbullying, cybervictimization or cyberbullying victim as such.

Table 1. Demographic Characteristics of the Sample

	Frequency	Percentage		Frequency	Percentage
Gender			Does your father live with you at home?		
Male	188	46.5	Yes	370	92.0
Female	216	53.5	No	13	3.2
			He passed away	19	4.8
Socioeconomic status			Does your mother live with you at home?		
Below-average	64	15.9	Yes	388	96.8
Average	245	60.9	No	9	2.2

Above-average	93	23.1	She passed away	4	1.0
Do You have a smartphone?			Daily internet use		
Yes	304	75.8	Less than one hour	123	32.5
No	32	8.0	Two to seven hours	214	56.5
I don't have cellphone at all	65	16.2	More than seven hours	42	11.1

Table 2. Prevalence of Cyberbullying Experience by Gender

	Not involved	Victim Only	Bully Only	Bully-Victim	Total
Gender					
Male	85 (45.2)	14 (7.4)	20 (10.6)	69 (36.7)	188 (100.0)
Female	117 (54.2)	30 (13.9)	11 (5.1)	58 (26.9)	216 (100.0)
Total	202 (50.0)	44 (10.9)	31 (7.7)	127 (31.4)	404 (100.0)

Table 3. Descriptive Statistics (Frequency and Percentages) for Adolescents' Risk and Protective Factors (Categorical Measures) For Cyberbullying Behavior

	Cyberbullying and Victimization Status						
Student's Characteristic	**Total N = 404**	**Not involved N = 202**	**Victim Only N = 44**	**Bully Only N = 31**	**Bully-Victim N = 127**	**Chi-Square Value**	**Sig**
Gender							
Male	188 (46.5)	85 (42.1)	14 (31.8)	20 (64.5)	69 (54.3)	12.573	0.006
Female	216 (53.5)	117 (57.9)	30 (68.2)	11 (35.5)	58 (45.7)		
School Bullying Victimization							
Yes	99 (25.1)	39 (20.0)	11 (25.6)	5 (16.1)	44 (34.9)	10.504	0.015
No	296 (74.9)	156 (80.0)	32 (74.4)	26 (83.9)	82 (65.1)		
School Bullying Perpetration							
Yes	90 (22.8)	22 (11.4)	9 (20.5)	10 (32.3)	49 (38.9)	34.450	0.001
No	304 (77.2)	171 (88.6)	35 (79.5)	21 (67.7)	77 (61.1)		
Internet Use							
one hour or less	123 (32.5)	84 (44.9)	13 (31.7)	6 (19.4)	20 (16.7)		
two to seven hours	214 (56.5)	89 (47.6)	27 (65.9)	23 (74.2)	75 (62.5)	41.404	0.001
More than seven hours	42 (11.1)	14 (7.5)	1 (2.4)	2 (6.5)	25 (20.8)		

Table 4. Descriptive Statistics (Means and Standard Deviations [Std. Dev]) for Adolescent Risk and Protective Factors (Continuous Measures) For Cyberbullying Behavior

Variable	Cyberbullying and Victimization Status									
	Total N = 404		**Not Involved N = 202**		**Victim Only N = 44**		**Bully Only N = 31**		**Bully-Victim N = 127**	
	Mean	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**
Self-esteem	30.06	5.87	31.27	5.50	29.25	5.57	30.45	6.30	28.33	6.02
Machiavellian	29.65	6.14	28.66	6.22	29.25	5.53	31.13	5.04	31.00	6.19
Narcissism	24.85	5.12	24.37	4.85	23.73	5.14	25.26	6.74	25.89	4.93
Psychopathy	20.04	6.10	18.23	5.71	18.87	4.90	22.62	5.56	22.68	6.09
Inter-parental conflict	10.22	2.96	9.85	2.73	10.73	3.02	9.07	2.46	10.93	3.22
School climate	10.89	3.01	11.64	2.85	10.90	3.03	9.43	2.45	10.03	3.04

Table 5. Odds Ratios (95% Confidence Interval) and Significance Obtained From the Multinomial Logistic Regression of Risk Factors on Cyberbullying and Victimization

Variable	Cyberbullying and Victimization Status								
	Cyberbullies			Cyber victims			Cyberbullying victims		
	OR †	P	B	OR †	P	B	OR †	P	B
Self-esteem	0.977	0.523	-0.023	0.997	0.944	-0.003	0.943	0.041	-0.059
Machiavellian	0.997	0.932	-0.003	0.999	0.985	-0.001	0.992	0.754	-0.008
Narcissism	0.985	0.719	-0.015	1.018	0.691	0.018	1.067	0.042	0.064
Psychopathy	1.015	0.691	0.014	1.117	0.009	0.110	1.090	0.002	0.086
Interparental conflict	1.063	0.305	0.061	0.850	0.066	-0.162	1.097	0.055	0.092
School climate	0.962	0.574	-0.039	0.851	0.031	-0.162	0.952	0.339	-0.049
[Gender = male]	0.782	0.522	-0.246	1.988	0.121	0.687	1.792	0.044	0.583
[TB victimization = yes]	1.392	0.453	0.331	0.974	0.964	-0.026	2.034	0.029	0.710
[TB perpetration = yes]	1.504	0.423	0.408	2.367	0.090	0.862	2.744	0.003	1.009
[Internet Use =one hour or less]‡	2.338	0.439	0.849	1.265	0.802	0.235	0.214	0.001	-1.542
[Internet Use =two to seven hours] ‡	4.889	0.139	1.587	2.926	0.207	1.073	0.662	0.341	-0.413

Bold indicates significant results. † Not-involved group as the referent group. ‡ More than seven hours group as the referent group.

Discussion

The purpose of this work was to investigate the predictive capacity of different factors for the probability of engaging in cyberbullying behaviors as bully, victim, and bullying victim. The cyberbully-victim group is composed of perpetrators and victims of cyberbullying; this means that any explanation as why a person belongs to the bully-victim group should first explain why a person perpetrates or becomes the victim of cyberbullying, and then explain why he or she took the opposite role, because as mentioned before, the bully-victim group is composed of two other groups.

The multinomial logistic regression also indicated that school bullying perpetration increases the chances of being bully-victims, in consistency with the study done by Hemphill and Heerde (36). With regard to the General Strain theory, we can argue that the aggression that students show in school bullying is perhaps the result of the frustration and anger that they feel from issues like family or interpersonal relationship problems, and these feelings can lead them to unhealthy behaviors (51). This means that frustration and anger may lead to cyberbullying behaviors, and school bullying is not the main reason. The main reason could be the low self-esteem, since school bullies (52) and cyberbully-victims (17) show low levels of self-esteem, and this can lead to cyberbullying behaviors. Furthermore, aggressive behaviors could be the result of psychopathic and antisocial traits (22) and these traits may be the reason for actions such as school or cyber bullying. With regard to the social learning theory, if a student bully others in school and gains rewards such as social support from other students, these rewards can reinforce aggressive acts in aggregate and lead to cyberbullying as an example of these acts. In addition, since cyberbullying is a risk factor for cybervictimization. Thus, they may experience cybervictimization too and become cyberbully-victims .

The results of multinomial logistic regression also revealed that school bullying victimization increases the chances of being bully-victims, in consistency with the study done by Cappadocia, Craig, and Pepler (8). With regard to the General Strain theory, the resentment and hostility that a student feels because of being victim of school bullying, could lead to unhealthy behaviors like cyberbullying, and this leads to cyber victimization and they become cyberbully-victims. Moreover, they can use the anonymity and take revenge on their school bully. Patchin and Hinduja (17) argued that school bullying victimization is related to low self-esteem, and considering the relationship between low self-esteem and cyberbully-victim (17), school victimization could lead to cyberbullying. From the social learning theory's point of view, if school bullies get rewards like social support from other students, they might want to establish the bully and victim relationship in social networks and bully their victims in cyberspace too, and if their victim insults or harasses them, they become cyber bully-victims, too.

With regard to gender, being male increases the chances of being cyberbully-victims, and this is consistent with other works (53). Agatston, Kowalski and Limber (54) mentioned that girls consider cyberbullying as a problematic behavior, but boys do not. In addition,

Olweus noted that boys show more overt aggressive acts from the early childhood ages (31); thus, it is not surprising if boys perpetrate cyberbullying more than girls. On the other hand, cyberbullying perpetration is a risk factor for cybervictimization (55), so it is possible that cyberbullies experience cybervictimization and become cyberbully-victims.

With regard to the internet usage, spending one hour or less on the internet decreases the chances of being cyberbully-victims, in consistency with another research work (56). Internet provides great opportunities like social networks to harass or insult others without face-to-face contact, and the bully can use anonymity and keep his or her true identity a secret. This could lead to more cyberbullying behavior. Furthermore, people share a lot of personal information on the internet, which could lead to experiencing cybervictimization (55). Evidently, if a person spends less time on the internet, the chances of doing such behaviors and finally becoming a cyberbully-victim decreases. However, in this time and age, it is not possible to tell a person not to use the internet. Alternatively, we have to teach them how to use the internet in more responsible ways.

Although the bully-victim group is composed of two other groups, results show that its risk factors differed from the bully-only and victim-only groups. Research shows that the bully-victim group is clearly different from the two other groups (41). The bully-victim group is probably at more risk of unhealthy behaviors, and even the least amount of stress can highly affect them, but the bully-only and victim-only groups are more resilient and stressful conditions cannot easily affect them.

Limitation

The sample was limited to Kermanshah's high school students in 2019-2020, and it should be considered in the generalizability of the outcomes. Another limitation of this work was its retrospective self-report method, which means that the respondents might have been influenced by current events and have not probably reflected their usual conditions.

Conclusion

This was the first research study about the risk and protective factors for cyberbullying in Iran, which attempted to clarify why students engage in cyberbullying behaviors, and its results showed that, in consistency with other countries traditional bullying (8, 36), gender (7) and internet usage (14) play an important role in cyberbullying behaviors. Previous studies examined the relationship between cyberbullying and dark triad traits, but this study was marked as the first to examines the roles of the dark triad traits in cybervictimization and cyberbully-victim. Although our results showed that those traits could not significantly increase the chances of cyberbullying behaviors, the odds ratios and mean scores showed that these traits may play a major role in cyberbullying, and future studies should consider them. Additionally, this study examined the bully-victim group. Although the literature showed that this group has some differences with the bully and victim only groups (10, 41), a few studies consider the bully-victim as a separate group. The results of our study indicated that the bully-victim group demands more attention. In brief, the results showed that gender (male), school bullying perpetration, and school bullying victimization were the risk factors for being cyberbully-victim and spending one hour or less on the internet was a protective factor against being cyberbully-victim, and any prevention or intervention program should consider these factors.

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Conflict of Interest

None.

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