การกลั่นแกล้งทางไซเบอร์ในกลุ่มวัยรุ่นในประเทศไทย และการศึกษาตัวแปรทำนายของการตกเป็นเหยื่อทางไซเบอร์และการกระทำการกลั่นแกล้งทางไซเบอร์

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บทคัดย่อ

การกลั่นแกล้งทางไซเบอร์เป็นพฤติกรรมที่เกิดขึ้นอย่างแพร่หลายในประเทศต่าง ๆ และดูคล้ายจะเป็นปัญหามากยิ่งขึ้นในช่วงโรคระบาด งานวิจัยนี้มีจุดประสงค์ทำความเข้าใจเรื่องการกลั่นแกล้งทางไซเบอร์ในกลุ่มวัยรุ่นในประเทศไทย โดยศึกษาตัวแปรทำนายของ 2 องค์ประกอบของการกลั่นแกล้งทางไซเบอร์ ได้แก่ การตกเป็นเหยื่อทางไซเบอร์และการกระทำการกลั่นแกล้งทางไซเบอร์ และศึกษาอิทธิพลส่งผ่านต่อความสัมพันธ์ของ 2 รูปแบบของการกลั่นแกล้งทางไซเบอร์ งานวิจัยนี้เก็บข้อมูลจากนักเรียนในระดับชั้นมัธยมตอนปลายจำนวน 222 คน ที่กำลังศึกษาอยู่ในโรงเรียนไทย โดยใช้การสุ่มแบบตามสะดวก และใช้แบบสอบถามออนไลน์ที่ประกอบไปด้วยมาตรวัดการรายงานตนเอง ผลการวิจัยพบว่า นักเรียนส่วนใหญ่มีการเกี่ยวข้องกับผ่านการกลั่นแกล้งทางไซเบอร์ ซึ่งแบ่งออกเป็นผู้กระทำและผู้ถูกกระทำร้อยละ 29.7 ผู้ถูกกระทำร้อยละ 26.1 และผู้กระทำร้อยละ 4.1 ผลของการวิเคราะห์การถดถอยเชิงชั้นแสดงให้เห็นว่า การเสพติดโซเชียลมีเดียและการรับรู้โดยทั่วไปที่มีต่อเพื่อนเป็นตัวแปรที่มีนัยสำคัญทางสถิติในการทำนายการตกเป็นเหยื่อทางไซเบอร์และการกระทำการกลั่นแกล้งทางไซเบอร์ แต่การเห็นคุณค่าในตนเองเป็นตัวแปรที่มีนัยสำคัญทางสถิติในการทำนายการกลั่นแกล้งรูปแบบของการตกเป็นเหยื่อเพียงเท่านั้น นอกจากนั้น การตกเป็นเหยื่อทางไซเบอร์มีอิทธิพลทางบวกต่อการกระทำการกลั่นแกล้งทางไซเบอร์ โดยความสัมพันธ์ระหว่างรูปแบบการกลั่นแกล้งทางไซเบอร์ทั้ง 2 สามารถอธิบายได้โดยการเสพติดโซเชียลมีเดียและการรับรู้โดยทั่วไปที่มีต่อเพื่อน โดยรวม การวิจัยนี้ชี้ให้เห็นถึงความจำเป็นในการออกแบบโปรแกรมที่ตอบสนองต่อปัญหาการเสพติดโซเชียลมีเดีย อีกทั้งการพัฒนาการเห็นคุณค่าในตนเองและความสัมพันธ์ระหว่างเพื่อนในโรงเรียนยังมีแนวโน้มที่จะช่วยลดปัญหาการกลั่นแกล้งทางไซเบอร์

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Cyberbullying among Adolescents in Thailand: Examining the Predictors of Cybervictimization and Cyberaggression

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Abstract

Cyberbullying is becoming more prevalent around the world and seems to have increased during the pandemic. The present research aimed to understand cyberbullying among adolescents in Thailand by examining the predictors of the two dimensions of cyberbullying (i.e., cybervictimization and cyberaggression) and mediating effects of the two cyberbullying forms. Data were collected from 222 Thai high-school students in Thai schools through a convenient sampling technique, using an online survey containing self-report measures. The results found that the majority of students were involved in cyberbullying, which was classified into 29.7% aggressor-victim, 26.1% victims, and 4.1% cyberaggressors. The results of hierarchical regression analyses showed that social media addiction and the generalized perception of peers were significant predictors of cybervictimization and cyberaggression, whereas self-esteem was a significant predictor of cybervictimization. More importantly, cybervictimization showed a positive effect on cyberaggression, suggesting that the relationship between the two forms of cyberbullying could be explained by social media addiction and the generalized perception of peers. Together, effective interventions that respond to social media addiction as well as enhance self-esteem and relationships with peers are needed to potentially reduce cyberbullying.

Keywords: Cyberbullying, social media addiction, self-esteem, perception of peers

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Introduction

In a survey released by UNICEF and the UN Special Representative of the Secretary-General (SRSG) on Violence against Children (UNICEF, 2019), one-third of young people representing 30 countries said they had experienced bullying online. One in five also stated they had missed school because of cyberbullying and violent behaviors. In 32 nations, 40 percent of youths claimed to have been victims of bullying, engaged in bullying behavior, or witnessed bullying (Beauchere, 2020). According to a recent study conducted in Thailand (Internet Foundation for the Development of Thailand, 2020), 15% out of 14,945 Thai children between 12 and 18 years old had experienced victimization due to cyberbullying, whereas 8% reported having bullied others. These actions included the sharing of private information and images as well as the distribution of inappropriate video clips via email, websites, and social media. The majority of the incidents (69%) involved being addressed inappropriately or disrespectfully. On top of that, cyberbullying was shown to be committed at an increased rate during the COVID-19 epidemic, which may have been due to a significant increase in stress and time spent using technology and social media (Barlett et al., 2022).

Evidence indicates that cyberbullying is likely linked to many detrimental effects for both the aggressors and victims, such as psychological issues (e.g., loneliness and anxiety), substance abuse, lower academic achievement, and lower school satisfaction (e.g., Kowalski et al., 2014; Marciano et al., 2020). In other words, cyberbullying has presented itself as a threat to an adolescent's education outcomes, social relationships, and well-being. Therefore, research around the world, including Thailand, has attempted to understand the predictors of cyberbullying in order to design effective interventions to mitigate the problem. The predictors of cyberbullying include demographic variables such as age and gender, individual variables such as social media use and self-esteem, parental-related variables such as monitoring and mediating strategies, and contextual variables such as school climate and peer influence (e.g., Ding et al., 2020; Kowalski et al., 2014; Zlamal et al., 2020).

Research objectives

This study aimed to examine predictors (i.e., individual, parental, and contextual factors) of cyberbullying by considering the two dimensions of cyberbullying (i.e., cyberaggression and

cybervictimization) and the differences among the profiles for cyberbullying (i.e., non-involved, cybervictim, cyberaggressor, and cybervictim-aggressor). These 4 profiles can broaden our understanding of cyberbullying in Thailand as some argue that a person can be both a victim and an aggressor (or perpetrator). As Ding et al. (2020) described, cybervictims may choose to engage in cyberbullying after being victimized as a way of coping with negative feelings. We also aimed to explore the potential mechanisms that may explain why cybervictimization is associated with cyberaggression. In addition, past research has examined the 4 profiles for cyberbullying among students in Thailand, but focused only on self-esteem as a predictor (Srisoem et al., 2021). This study extended the current knowledge in Thailand by considering the individual factors, parental factors, and contextual factors for the two dimensions of cyberbullying.

Literature Review

Cyberbullying Dimension and Profiles

Cyberbullying has been referred to as the intentional, repeated act of inflicting harm on a victim through the use of certain online or electronic channels, often due to a power imbalance (Kowalski et al., 2014). As an example, the behaviors usually involve posting pictures or sending direct text messages by an individual or a group. While closely linked, it has been differentiated from traditional bullying. Cyberbullying introduced a new form of bullying in which the perpetrators can maintain their anonymity and reach the victim at any time or place (Herrera-López et al., 2017).

In this work, we employed a widely validated model (Del Rey et al., 2015), assessed by the *European Cyberbullying Intervention Project Questionnaire* (ECIPQ), to measure both forms of cyberbullying, namely cyberaggression (or cyberperpetration) and cybervictimization. The aggression factor covers the cyberbullying behavior being enacted by the person, whereas the victimization factor refers to the experience of being cyberbullied. However, cyberbullying is a dynamic phenomenon whereby a victim may subsequently become an aggressor. For instance, a meta-analysis study by Kowalski et al. (2014) showed that cybervictimization is a risk factor for cyberaggression. In line with this, Marciano et al. (2020, p. 174) explained that one form of cyberbullying increases the risk of becoming involved in another form of cyberbullying through ‘internalizing [psychological] problem’ and ‘externalizing problem behaviors’. Therefore,

past studies have examined both cyberaggression and cybervictimization concurrently and considered the profiles of cyberbullying. We adopted 4 profiles for cyberbullying consistent with past studies (e.g., Herrera-López et al., 2017; Srisoem et al., 2021). These include 'non-involved', meaning those who are involved in a very low level of cyberaggression and cybervictimization, 'aggressors', meaning those who show a high level of cyberaggression, 'victims', representing those who show a high level of cybervictimization, and 'victim-aggressors', comprising those who experience a medium or high level of cyberaggression and cybervictimization.

Individual Factors

Social Media Addiction

The definition of social media addiction has been closely modeled on Internet addiction. While Internet addiction encompasses all forms of Internet-related behavior, social media addiction is more specific to the online use of social media platforms. Accordingly, social media addiction is a problematic behavior characterized by preoccupation, uncontrollable impulses to use social media, failure to reduce the amount of time spent on social media, and interference with other activities (Chang et al., 2015). Previous research by Craig et al. (2020) found that social media use could predict both forms of cyberbullying among adolescents aged between 11 and 15 in 42 countries, though the relationship between social media use and cyberaggression may be more consistent across the samples. The relationship between internet addition and cyberbullying has also been found in Thailand (Jitsom et al., 2022)

Self-esteem

According to Rosenberg in 1965 (as cited in Palermiti et al., 2017), self-esteem is "a favorable or unfavorable attitude towards the self". Self-esteem is a subjective view or judgment of how one is regarded by others. A person with high self-esteem is typically assertive, content, and self-respectful. In contrast, a person with low self-esteem is usually uneasy, insecure, and critical of themselves. People with poor self-esteem also frequently struggle with social issues and have contradictory views of their identity. In general, good life events like success and favorable peer perception tend to increase a subject's self-esteem.

Self-esteem appears to play a role not only in a person's attitude towards oneself, but also in the attitude towards others. Different levels of self-esteem may lead to varying social

consequences for adolescents. A recent meta-analysis by Lei et al. (2020), which incorporated a total of 49,406 samples, provided evidence demonstrating a link between self-esteem and cyberbullying perpetration. Adolescents who possess low self-esteem are less likely to have social connections and conform to social norms. This in turn increases the likelihood of aggression towards others. Nonetheless, past research has also shown self-esteem to be a predictor of cybervictimization (e.g., Palermiti et al., 2017).

Parental Mediation and Control as Parental Factors

The approach or management strategy employed by parents to moderate their children's internet activities is known as parental mediation (Navarro et al., 2013). The term is also used interchangeably with parental monitoring (Doty et al., 2018). Often, adolescents use social media by themselves which may increase the risk of being exposed to aggressive behaviors or content. When comparing cyberbullying victims and non-victims, the victims reported higher parental mediation in their Internet usage (e.g., Navarro et al., 2013; Sasson & Mesch, 2017). However, information about the relationship remains inconclusive. For example, a study by Doty et al. (2018) found that parental mediation of online activities did not relate to cybervictimization but did relate to a lower level of cyberaggression.

Another management strategy is parental control, which refers to the restrictions cast upon children’s Internet use by their parents. In general, adolescents who did not have parental control of their Internet use had higher online risks and problematic Internet use behaviors as explained by moral disengagement (Bartolo et al., 2019). For instance, a study conducted on Turkish high-school students found that parental control could predict cyberbullying behaviors (Beyazit et al., 2017). Similarly, East Asian adolescents had higher levels of parental control and lower levels of parental solicitation compared to European adolescents, which were related to lower reported levels of cyberaggression (Shapka & Law, 2013). Taken together, both parental mediation and parental controls can be predictive factors for both forms of cyberbullying, especially cybervictimization. However, Internet restriction and other control-focused techniques (i.e., parental control) may have less influence on the aggression and victimization of cyberbullying when compared to a more collaborative technique (i.e., parental mediation) (Elsaesser et al., 2017).

Contextual Factors

Generalized Perception of Peers

Peer perception is characterized as the conceptual frameworks, or "social schemas," that adolescents form based on their observations and inferences about the behaviors and attitudes of peers (Holmes, 2000). They employ the conclusions they derive from these inferences in new social contexts because they are generally stable knowledge structures that are maintained in the long-term memory. From this premise, children may have an overall impression of their classmates as being unreliable and unsupportive, or as being reliable and caring (Ladd & Troop-Gordon, 2003). Past research found that students who were not involved in cyberbullying perceived their peers more favorably than the cyberbullying perpetrators (Bayar & Uçanok, 2012). A recent study (Romera et al., 2022) also found consistent results showing that there was a stronger relationship between peer perception and cybervictimization in classes with lower levels of social adjustment. Thus, a positive generalized perception of peers may be a protective factor against cybervictimization.

School Climate

School climate refers to the perception of school life and culture in terms of how it is (known as character) and how well it is (known as quality) (Wang et al., 2021). It is formed by the student's experiences. It also reflects other aspects of the school, including norms, goals, values, interpersonal relationships, how learning and teaching are done, as well as the structures of the organization. Consistent results from past research showed that school climate could be another important variable that influences how much students experience cyberbullying. Poorer perception of school climate was found to have a significant negative effect on cyberbullying among middle to high-school US student samples (e.g., Acosta et al., 2018). In other countries, school climate was also found to negatively predict cyberbullying perpetration, such as in Italy (Bartolo et al., 2019) and China (Wang et al., 2019).

Methodology

Data is a part of the project entitled "Cross-cultural study of individual and contextual factors of cyberbullying and prejudice-based cyberbullying among high school students". Data of the larger project were collected from 74 schools in 16 countries and were partly

supported by COST Action (CA18115). The data collection in Thailand received ethical approval from the Research Ethics Review Committee for Research Involving Human Research Participants, Group I, Chulalongkorn University (No. 159/2021).

Participants

The convenient sampling technique through the researchers' network was used to select 12 schools in the Bangkok Metropolitan area. To ensure that students from different socio-economic backgrounds were included, schools from both lower and higher socio-economic status categories were contacted. For the category of higher socio-economic status, the researchers considered the schools operating under the Office of the Basic Education Commission. In contrast, the schools from the lower socio-economic status category were those operating under the Bangkok Education Office, where students and their families were not required to pay tuition or nor lunch fees. All expenses in these schools were fully supported by the Bangkok Education Office.

These 12 schools comprised both government and private schools. Only one of the schools was a medium-sized school (fewer than 720 students) while the other 11 schools were large (more than 720 students). In addition, the inclusion criteria specified that (1) the student must be enrolled in a participating school, (2) the student must be between the ages of 16 and 18 years old, (3) the parent of the student must have provided consent to participate in the study and the student must provide personal consent to complete the survey, and (4), the student must have at least one electronic device, such as a computer, smart-phone, or other devices that they could use to complete the online survey. The details about participation in this research were shared by their school teachers, informing them that participation was completely voluntary.

The participants for this study were 222 Thai high school students from 12 schools in urban areas (i.e., Bangkok Metropolitan Region) and from both lower and higher SES. The average age was 16.2 years old, and 64.2% were female (*N* = 140), with 47.5% attending Matthayom 4 (*N* = 105), and another 42.5% attending Matthayom 5 (*N* = 94). Nearly half of the participants' parents were university graduates (44.9% for fathers and 48.9% for mothers). Approximately 88.3% of participants were Buddhist (*N* = 196), while 5% had a disability (*N* = 11), and only 1.4% were seeking asylum (*N* = 3).

Materials

Seven measures were translated from English to Thai following the back-translation method. Demographic information was also gathered which included questions about each participant's age, gender, basic school information, parents' highest education level, nationality, migrant status, religion, and diagnostic disability.

1. Cyberbullying was assessed with the 22-item European Cyberbullying Intervention Project Questionnaire (Del Rey et al., 2015) which has also been adopted and validated in non-European countries (e.g., Herrera-López et al., 2017). The scale measured cybervictimization (11 items) and cyberaggression (11 items) dimensions of cyberbullying in the previous 12 months. Examples of the items were, "Someone said nasty things to me or called me names using texts or online messages" for victimization, and "I said nasty things to someone or called them names using texts or online messages" for aggression. The responses were rated on a 5-point Likert scale ranging from "Never" (0) to "More than once a week" (4). The Cronbach's alpha coefficients were .73 and .68 for victimization and aggression, respectively. In addition, the classification criteria suggested by Del Rey et al. (2015) were used to create the 4 cyberbullying profiles.

2. The 6-item Bergen Social Media Addiction Scale or BSMAS (Andreassen et al., 2016) was used to assess the six components of social media addiction within the last 12-month period. An example of the items was, "...felt an urge to use social media or planned use of social media". The responses were rated on a 5-point Likert scale ranging from "Very rarely" (1) to "Very often" (5). The Cronbach's alpha coefficient of the 6 items was .78. In addition, a cut-off point of 24 out of 30 was used as a criterion for social media disorder as suggested by Luo et al. (2021)

3. The short form of the Generalized Perception of Peers Questionnaire (Salmivalli et al., 2005) was adopted to measure the generalized perception of peers. The form assesses how the participant perceives classmates to possess negative and positive qualities with a total of 8 items. An example of the items was, "my classmates can really be relied on." The responses included "No, totally untrue" (0), "Sometimes" (1), and "Yes, totally true" (2). The scores for the items tapping into negative qualities were reversed to create a total score for the generalized perception of peers that reflects the positive qualities of peers. The Cronbach's alpha coefficient was .74.

4. The school climate was assessed with the 5 items of the School Climate Scale (Zlamal et al., 2020) which covered perceptions towards the school, students in the school, and teachers in the school. An example of the items was, "I feel like I belong in my school." The responses were rated on a 4-point Likert scale ranging from "Not true at all" (1) to "Completely true" (4). The Cronbach's alpha coefficient was .73.

5. Self-esteem was assessed with the Thai version of the Rosenberg Self-Esteem Scale by Wongpakaran and Wongpakaran (2011) comprising 10 items. An example of the items was, "On the whole, I am satisfied with myself." The responses were rated on a 5-point Likert scale ranging from "Strongly disagree" (1) to "Strongly agree" (5). The Cronbach's alpha coefficient was .85.

6. Parental mediation was assessed with the 4-item Parental Mediation Scale (Zlamal et al., 2020). The question asked, "When you use the internet, how often does your parent/carer do any of these things?" The following statements were, for example, "...explains to you how to use the internet safely." The responses were rated on a 4-point Likert scale ranging from "Never" (1) to "Very often" (4). The Cronbach's alpha coefficient was .88.

7. Parental control was assessed with the 3-item Parental Control Scale (Zlamal et al., 2020). The question asked, "Does your parent/carer make use of any of the following?" The following statements were, for example, "parent controls or other means of blocking or filtering some types of content". The responses were chosen from one of three choices, "No" (0), "Yes" (1), and "I don't know" (2). The scores were recorded on a 3-point Likert scale including no control (1), unsure (2), control (3). The Cronbach's alpha coefficient was .63.

Procedure

Data collection was undertaken from June 2021 to October 2021 during the pandemic. School principals at the selected schools were contacted to obtain approval to include the schools in the study. The school teachers were in charge of the distribution and collection of the parental consent forms. To send parents the link to the informed consent for parents, the teachers contacted the parents in whichever way they typically interacted with them. Their role also included the distribution of the online survey using Google Forms. Once the teachers and researchers received parental consent, a name list was created that included only

the names of students' whose parents had given their consent, which was then sent out to the student pool again. Students who had their names on the list were asked to complete the online survey.

On the first page of the questionnaire, participants were informed that their participation in the online survey was completely voluntary and anonymous. They were assured that they could withdraw at any time. After giving their consent, they were redirected to the actual measurement section. The subsequent pages contained the survey items, including both the scales and demographic items. The questionnaire took approximately 20 minutes to complete.

Analytical Procedure

The analyses were conducted by using the SPSS statistical software and comprised three parts. The first part explored the 4 profiles for cyberbullying in which mean differences for the predictor variables were compared across the 4 profiles using one-way analysis of variance (ANOVA). Bonferroni post-hoc tests were analyzed for the significant variables. Then, a hierarchical regression analysis was carried out separately on each of the two dimensions of cyberbullying, where individual factors were entered in Step 1, parental factors were entered in Step 2, and contextual factors were entered in Step 3. In the last part, the variables that were significant in predicting cyberbullying were selected as potential mediating variables. The PROCESS macro (Model 4) in SPSS was used to explore mediating effects between cybervictimization and cyberaggression. Specifically, 95% confidence intervals using 5000 bootstrapped samples were used.

Results

The descriptive statistics and correlation coefficients are reported in Table 1. As shown, victimization of cyberbullying was positively correlated with the aggression of cyberbullying (r = .58, p < .01).

Use of social media

The social media platforms used the most were Facebook (86.9%), followed by YouTube (85.6%), Instagram (78.4%), TikTok (64.4%), Twitter (59.0%), and Snapchat (9.9%). The average time

spent on social media during weekdays and weekends was 6.42 hours (*SD* = 3.64 hours) and 9.61 hours (*SD* = 4.70 hours), respectively. A total of 7.7% of participants scored between 24 and 30 on a social media addiction scale, suggesting the existence of a social media disorder.

Table 1

Means, standard variations, and correlation coefficients of the variables

	M	*SD*	1	2	3	4	5	6	7
1. Victimization	1.43	.40	-						
2. Aggression	1.24	.27	.58**	-					
3. SMA	2.70	.88	.41**	.37**	-				
4. GPOP	1.48	.33	-.26**	-.27**	-.11	-			
5. School climate	3.00	.62	-.07	-.02	.04	.39**	-		
6. Self-esteem	3.44	.87	-.27**	-.18**	-.32**	.27**	.29**	-	
7. Parental mediation	2.99	1.15	-.06	-.12	-.03	.06	.23**	.15*	-
8. Parental control	1.94	.37	.02	.11	-.03	.02	-.03	.01	-.06*

Note. $*p < .05$ $**p < .01$; SMA = social media addiction, GPOP = generalized perception of peers

Four profiles for cyberbullying

The majority of participants, comprising 40.1% were not involved (i.e., non-involved) in cyberbullying. This was followed by 29.7% who were involved in both cyberaggression and cybervictimization (i.e., victim-aggressor). A total of 26.1% were classified as victims, and only 4.1% were involved only in cyberaggression (i.e., aggressor).

Table 2 reports the results of one-way ANOVA regarding the mean differences in social media addiction, generalized perception of peers, school climate, self-esteem, parental mediation, and parental control across the four cyberbullying profiles. Only social media addiction, generalized perception of peers, and self-esteem significantly varied across the 4 cyberbullying profiles. Bonferroni post-hoc tests found that victims, aggressors, and victim-aggressors showed higher levels of social media addiction than non-involved students, and victim-aggressors also showed a higher level of social media addiction than aggressors. In addition, non-involved students reported high levels of generalized perception of peers and

self-esteem compared to victim-aggressors. Non-involved students also showed a higher level of self-esteem than aggressors.

Table 2

Mean differences across non-involved, victims, aggressors, and victim-aggressors

Variables	Cyberbullying Profiles				Pairwise comparisons	*F*(3, 218)
	Non-involved (*N* = 89)	Victims (*N* = 58)	Aggressors (*N* = 9)	Victim-Aggressors (*N* = 66)		
	M(*SD*)	*M*(*SD*)	*M*(*SD*)	*M*(*SD*)		
SMA	2.29(.75)	2.65(.83)	3.04(1.00)	3.24(.76)	**N < V,A,VA; VA > A**	19.13***
GPOP	1.59(.30)	1.47(.33)	1.46(.32)	1.34(.32)	**N > VA**	8.26***
School climate	3.09(.62)	2.85(.61)	2.89(.70)	2.99(.59)	N = V = A = VA	1.91
Self-esteem	3.79(.76)	3.20(.91)	3.14(1.04)	3.22(.82)	**N > V,VA**	8.93***
Parental mediation	3.01(1.15)	3.22(1.17)	3.17(1.18)	2.74(1.10)	N = V = A = VA	1.90
Parental control	1.95(.39)	1.89(.40)	1.70(.45)	2.01(.30)	N = V = A = VA	2.40

Note. ***$p < .001$, $p < .05$; Levene statistic = 3.35; SMA = social media addiction, GPOP = generalized perception of peers

Predictors of cyberaggression and cybervictimization

The results of hierarchical multiple regression analyses for cybervictimization and cyberaggression as the outcome variables are presented in Table 3.

Concerning demographic variables, age was the only factor that predicted cybervictimization ($\beta = -.16$, $p < .05$). Next, social media addiction positively predicted both cybervictimization ($\beta = .32$, $p < .001$) and cyberaggression ($\beta = .37$, $p < .001$). Self-esteem negatively predicted cybervictimization only ($\beta = -.14$, $p < .05$). Parental-related factors (i.e., mediation and control) did not predict both of the outcome variables. Last, generalized perception of peers negatively predicted cybervictimization ($\beta = -.26$, $p < .001$) and cyberaggression ($\beta = -.28$, $p < .001$).

Table 3

Hierarchical multiple regression model for cybervictimization and cyberaggression

	Cybervictimization						Cyberaggression					
	R^2	ΔR^2	*β*	*SE*	*t*	*p*	R^2	ΔR^2	*β*	*SE*	*t*	*p*
Step 1 Demographics	.04							.01				
Gender			-.12	.03	-1.66	.10			-.06	.02	-.78	.44
Age			-.16	.02	-1.99	**< .05**			-.10	.02	-1.24	.22
Class year			.06	.05	.77	.44			.03	.03	.33	.74
GPA			.02	.05	.30	.77			-.02	.04	-.28	.78
Step 2 Individual	.17	.14					.15	.14				
SMA			.32	.03	4.68	**< .001**			.37	.02	5.29	**< .001**
Self-esteem			-.14	.03	-2.01	**< .05**			-.07	.02	-1.02	.31
Step 3 Parental	.18	.01					.17	.01				
Parental mediation			-.08	.02	-1.20	.23			-.06	.02	-.90	.37
Parental control			.06	.07	.87	.39			.10	.05	1.44	.15
Step 4 Contextual	.24	.06					.19	.06				
GPOP			-.26	.08	-3.69	**< .001**			-.28	.06	-3.91	**< .001**
School climate			-.01	.05	-.10	.92			.12	.03	1.65	.10

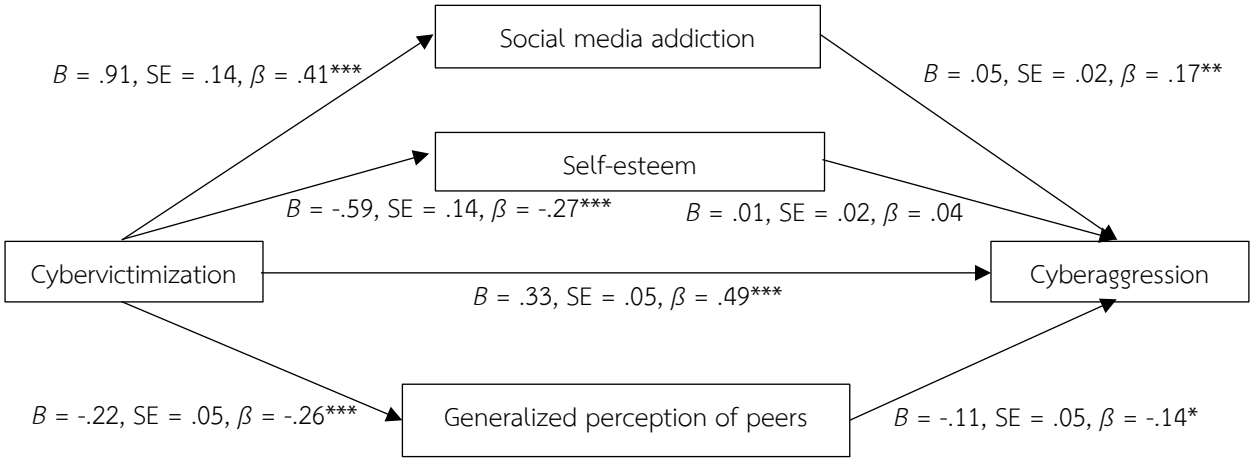
Note. Cybervictimization: VIF < 1.34, Tolerance > .74; Durbin-Watson = 1.81 and Cyberaggression: VIF < 1.34, Tolerance > .75; Durbin-Watson = 2.05; SMA = social media addiction, GPOP = generalized perception of peers

Next, the effect of cybervictimization on cyberaggression was tested the 3 mediating roles of social media addiction, self-esteem, and generalized perception of peers were explored using PROCESS Macro (Model 4). The results are summarized in Figure 1.

Cybervictimization had a significant total effect (*B* = .40, SE = .04, *p* < .001) and significant direct effect (*B* = .33, SE = .04, *p* < .001) on cyberaggression. Cybervictimization, social media addiction, self-esteem, and generalized perception of peers together accounted for 37.57% of the variance in cyberaggression. For the first mediator, cybervictimization had a positive effect on social media addiction (ß = .41, *p* < .001), and social media addiction had a positive effect on cyberaggression (*ß* = .17, *p* < .01). Thus, it was found that social media addiction significantly and partially mediated the positive relationship between cybervictimization and cyberaggression (*ß* = .07, 95% CI [.02, .14]).

Figure 1

Results of the mediating effects on the relationship between cybervictimization and cyberaggression



Model summary R^2 = .34

For the second mediator, cybervictimization had a negative effect on self-esteem (β = -.27, p < .001), but self-esteem was not found to have a significant effect on cyberaggression (β = .04, p = .48). Self-esteem did not have a significant indirect effect on the relationship between cybervictimization and cyberaggression (β = -.01, 95% CI [-.05, .02]). Last, cybervictimization had a negative effect on the generalized perception of peers (β = -.26, p < .001), while the generalized perception of peers had a negative effect on cyberaggression (β = -.14, p < .05). Generalized perception of peers was therefore found to be a significant mediator (β = .04, 95% CI [-.01, .07]).

Discussion

The first objective of the present study was to examine the 4 profiles for cyberbullying among Thai high-school students. The findings demonstrated that 40.1% of students were classified as non-involved (i.e., low cybervictimization and low cyberaggression). Compared to previous studies examining the non-involved cyberbullying profile (e.g., a rate of 92% found in Ding et al., 2020), the rate of 40.1% is considered to be relatively low. On the other hand, victim-aggressor comprised the largest number of students (26.1%) among the 3 profiles involving cyberbullying. The findings in this study were moderately different from the study by Srisoem et al. (2021), which examined the 4 profiles for cyberbullying among high-school students

in Thailand. They found that the majority of students (46.5%) were classified as victim-aggressor, followed by 25.3% as non-involved, 14.9% as victims, and 13.3% as aggressors.

Next, the study examined the predictors (i.e., individual, parental, and contextual factors) for the two domains of cyberbullying and controlled the effects of demographic variables in the analyses. First, consistent with the cross-national analysis study of Craig et al. (2020), social media addiction positively predicted both cybervictimization and cyberaggression. The anonymous nature of the Internet may allow aggressive behaviors to occur without negative consequences, such as verbal attacks and creating rumors. Thus, aggression may be learned and reinforced. Excessive use of social media also creates more opportunities for adolescents to be exposed to the risks of cybervictimization. Another individual predictor, self-esteem, was found to predict only cybervictimization but not cyberaggression. Although the association between cyberbullying and self-esteem has been inconsistent in the literature, the findings in this study support previous research that found self-esteem was not a significant risk factor for cyberaggression (e.g., You & Lim, 2016). On the contrary, adolescents who have lower self-esteem are more likely to be cyberbullied. Thus, enhanced self-esteem can be a protective factor against cybervictimization as suggested by Palermiti et al. (2017).

The findings further showed that parental mediation and parental control could not predict cyberbullying. This is contradictory to past findings that found family support had a significant impact on reduced cyberbullying. Regarding the contextual factors, the generalized perception of peers or the degree to which students perceived their classmates to possess positive qualities was a significant protective factor for both cybervictimization and cyberaggression. This is consistent with past studies (e.g., Bayar & Uçanok, 2012; Romera et al., 2022). In addition, the findings in the current study were inconsistent with previous studies that found a significant effect of school climate on cyberbullying (e.g., Acosta et al., 2018; Ding et al., 2020; Wang et al., 2021). It is possible that aggressors in the cyber context may not be individuals from the victim's school. Thus, a positive school climate may not be a protective factor against cybervictimization. On the other hand, school climate may have an indirect effect, instead of a direct effect, on cyberaggression through the mediating effect of moral disengagement (Wang et al., 2021) or school connectedness and peer attachment (Acosta et al., 2018). Also, since data in this study were collected during the pandemic, when many schools were

closed and classes took place primarily online, the dynamic between students and the school may have changed.

The study likewise tested the effect of cybervictimization on cyberaggression and explored potential mechanisms that could explain the link between being a cybervictim and being a cyberaggressor. The mediating effects of the 3 factors that were found to be significant predictors of cyberbullying were explored including social media addiction, self-esteem, and generalized perception of peers. Consistent with prior studies (e.g., Beyazit et al., 2017; Marciano et al., 2020), the overall results showed that cybervictimization had a positive effect on cyberaggression. This relationship was mediated by social media addiction and generalized perception of peers. Similarly, experiences with bullying victimization were shown to be associated with cyberaggression.

First, for social media addiction, this explained that adolescents who are cyberbullied are more likely to increase the use of social media, which in turn increases the likelihood of cyberaggression. As described by observational learning (Bandura, 1986), cybervictims who continue to use social media may learn to model aggressive behaviors, especially if such behaviors are normatively accepted within online environments. Second, the generalized perception of peers mediated the relationship between cybervictimization and cyberaggression. Bayar and Uçanok (2012) showed that, compared to non-involved, cybervictims are less likely to perceive their peers in a positive light. Students who are victimized may perceive a lack of support from their classmates, which in turn leads to aggressive behaviors online, possibly as a form of revenge or as a means to cope with negative emotions.

While significant findings were found, the present study was not without limitations. First, the data were collected during the pandemic, and the schools may have had different teaching regulations (i.e., on-campus, online, and hybrid). This could have had an impact on social interactions among students, especially the ways schools support and reach out to students. Also, the data were collected from various schools, but the analyses were conducted at the individual level. In the future, multilevel analyses could be used to examine the effects of contextual factors on cyberbullying. In relation to this, the study used a convenience sampling method. Thus, the sample may not be representative of the population of high-school students in Thailand. More importantly, caution should be used when interpreting the relationship between

cybervictimization and cyberaggression because of the cross-sectional nature of the data. A longitudinal research design should also be adopted to examine a more causal, dynamic relationship between the two forms of cyberbullying and the potential mechanisms found in this study.

Recommendations

Since being involved in cyberbullying can lead to negative outcomes (e.g., Kowalski et al., 2014; Marciano et al., 2020), the development of effective interventions to reduce such phenomena among adolescents is needed. Given that technology and the Internet have become prominent learning tools, adolescents appear to access social media platforms more easily and frequently. Researchers and practitioners have moved away from prohibitive solutions and promoted supportive solutions instead (e.g., Beyazit et al., 2017). These include social media literacy training and creating awareness of cyberbullying as examples, which can be integrated into a school or classroom curriculum. Additionally, schools should consider self-esteem enhancement and interpersonal relationship workshops as protective strategies for students. Schools should also consider making counseling services available for students who are involved in cyberbullying.

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