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## FACTORS RELATED TO UNIVERSITY STUDENTS' CYBERBULLYING IN CENTRAL VIETNAM

Ho Thi Truc Quynh<sup>1\*</sup> and Hoang The Hai<sup>2</sup>

<sup>1</sup>*Department of Psychology and Education, University of Education, Hue University.*

<sup>2</sup>*Faculty of Psychology and Education, The University of Danang,  
University of Science and Education*

**Abstract.** Cyberbullying victims are on the rise not only among middle and high school students but also among university students. Several previous studies have focused on factors that increase the risk of cyberbullying perpetration and cyberbullying victimization among adolescents. This study aims to explore the influence of self-esteem, social support, depression, time spent on social networking sites, and several demographic variables (age, gender) on the risk of cyberbullying victimization among university students in Vietnam. 859 university students completed questionnaires about cyberbullying victimization, self-esteem, social support, depression, and time spent on social networking sites. The results indicated that 70.5% of participants reported cyberbullying victimization in the past 30 days. Gender, time spent on social networking sites, age, self-esteem, and social support were related to the likelihood of cyberbullying victimization. With the above findings, gender, age, time spent on social networking sites, self-esteem, and social support should be taken into consideration when developing future interventions to reduce the prevalence of cyberbullying victimization.

**Keywords:** Cyberbullying victimization; social support; self-esteem; time spent on social networking sites; university students.

### 1. Introduction

The development of the Internet and electronic devices brings many advantages and disadvantages to our daily lives. The combination of the development of science, technology, and the violent nature of the human being leads to cyberbullying. Cyberbullying refers to deliberate, threatening acts by an individual or a group of people on a repetitive basis through electronic communications against the victim or someone who does not easily protect themselves (Smith et. al., 2008). Some characteristics of cyberbullying were listed as follows: easy accessibility, anonymity, wide audience, rapid and distant communication (Patchin & Hinduja, 2010), repetition, power imbalance and intentionality (Menesini et. al., 2012), the ability to bully many people relatively easily and the ability to bully anytime and anywhere (Kowalski et. al., 2014). Cyberbullying can be classified in a variety of ways. For instance, cyberbullying can occur by sending images, videos, audio files, text messages, emails, websites, and chat applications (Rajbhandari & Rana, 2022). Cyberbullying can also include impersonation, outing, cyber threats, flaming, cyberstalking, exclusion, impersonation, trickery, denigration, and harassment (Murwani, 2019). Pham and Tran (2016) based on the point of view

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Contact Ho Thi Truc Quynh, e-mail address: [httquynh@hueuni.edu.vn](mailto:httquynh@hueuni.edu.vn)

of Patchin and Hinduja (2010) classify cyberbullying into 6 types (receiving vulgar messages/images, being isolated by an online group, spreading rumors online, being posted harmful photos/videos/messages, being threatened online, being called in slang). In this study, we classify the forms of cyberbullying according to Pham and Tran (2016).

According to Peled (2019), university students have used the Internet for various purposes such as entertainment, communication, and learning. University students have used the Internet for social interaction activities more and more frequently (Tran & Bui, 2015). Average daily time spent on the Internet has been found to be associated with *the likelihood of cyberbullying victimization* (Chi et al., 2020). Therefore, in recent years, the prevalence of cyberbullying victimization among university students tends to increase (Ho et. al., 2020). For example, the prevalence of cyberbullying victimization in the study of Dilmaç (2009), Turan et al., (2011), Leung et. al. (2018) were 55.3%, 59.8% and 68.0%, respectively.

Several studies reported that cyberbullying victimization can experience psychological and emotional distress (Kowalski, Limber & Agatston, 2012) such as anxiety, depression and poor physical health; loneliness, sadness and frustration as well as learning difficulties (Olenik-Shemesh, Heiman, & Eden, 2012). College students who reported being victims of cyberbullying were likely to experience anxiety, depression, substance abuse, low self-esteem and suicidal thoughts (Patchin & Hinduja, 2010). Previous research has demonstrated that a variety of variables, including low self-esteem (Egan and Perry, 1998), a lack of social support (Wang, Iannotti and Nansel, 2009), depression (Rose and Tynes, 2015) and time spent on SNSs (Juvonen & Gross, 2008) might increase a person's chance of being a victim of cyberbullying. In addition, the frequency of victims of cyberbullying varies depending on their gender (Makri-Botsari & Karagianni, 2014) and age (DeSmet et al., 2018; Tsitsika et al., 2015). High levels of social support and self-esteem are two of these things that are thought to shield people from the possibility of becoming victims of cyberbullying (Holt and Espelage, 2007; Kirkham and O'Moore, 2001).

In Vietnam, research on cyberbullying *mainly focused* on middle and high school students (e.g., Le, Nguyen et. al., (2017); Le et. al., (2019); Pham and Tran (2016). However, little is known about cyberbullying as well as the factors related to the likelihood of cyberbullying victimization among Vietnamese university students. To fill this gap, our study investigates the influence of self-esteem, social support, depression, time spent on SNSs, age and gender on the likelihood of cyberbullying victimization among university students in Vietnam.

## 2. Content

### 2.1. Theoretical basis

#### *Self-esteem and cyberbullying victimization*

According to Rosenberg (1965), self-esteem as an individual's favorable or unfavorable attitude toward self. Cyberbullying can have some adverse effects on victim's self-esteem, health and psychological readjustment (Patchin & Hinduja, 2010). Therefore, several studies have found that victims of cyberbullying tend to have lower self-esteem than non-victims (Cénat et. al., 2014). On the other hand, high self-esteem can protect young people from bullying (Kirkham and O'Moore, 2001). In contrast, people with low self-esteem can become an easily target of the perpetrators (Egan and Perry, 1998). It also means that low self-esteem is associated with increased likelihood of cyberbullying victimization.

#### *Social support and cyberbullying victimization*

Social support plays an important role in the health and well-being of individuals (Ribeiro, 1999). According to Saylor and Leach (2009), social support reflects an individual's thinking

about being respected, loved, cared for, and loved by others in their lives. Sources of social support are diverse, possibly from families, peers, teachers and other important people. According to Holt and Espelage (2007), social support can protect both victims and bullies from traditional bullying. In the context of cyberbullying, low social support was associated with increased likelihood of cyberbullying victimization (Wang et al., 2009). Previous studies have reported that support from family, friends and other important people can be at decreased risk of cyberbullying victimization and reduce the negative consequences of cyberbullying (Wang et al., 2009). Therefore, individuals with low social support may be more likely to be cyberbullied.

#### ***Depression symptoms and cyberbullying victimization***

Depression is one of the most common mental disorders. Depressed people often lose interest, feel depressed, have reduced energy, feel low self-esteem, disturbed sleep or appetite, and impaired concentration (Wilhelm Kirch, 2008). A large number of studies have indicated that *cyberbullying victimization* was related to an *increased risk of depression* (Chu, Fan, Liu, & Zhou, 2018; Li et. al., 2018). Accordingly, cyberbullying can be considered as either a social exclusion or negative assessment, reinforcing an individual's negative self-assessment (van den Eijnden et. al., 2014) and high loneliness (Gámez-Guadix, Orue, Smith, & Calvete, 2013), which in turn leads to depression. In contrast, several studies have shown that depression was associated with an *increased risk of cyberbullying victimization* (Rose and Tynes, 2015). Accordingly, depressed individuals “may have less social skills, and the tendency to isolate makes them less attractive than their peers, thereby increasing their likelihood of being a victim” (Gámez-Guadix et al., 2013). In this study, we expect that a higher level of depression is to an increased risk of *cyberbullying victimization*.

#### ***Time spent on Social Networking Sites and cyberbullying victimization***

In recent years, SNSs have become popular among young people. Previous studies have found a positive relationship between time spent on SNSs and the likelihood of being cyberbullied (Gámez-Guadix et al., 2013). Accordingly, the odds of *cyberbullying victimization* increase along with time spent on SNSs. Adolescents who spend an average of 2 hours or more per day on SNSs are at a high risk of becoming victims of cyberbullying (Tsitsika et. al., 2015). University students who live far away from their families may feel lonely and isolated (Yoo et. al., 2014). To deal with loneliness and isolation, students may spend more time on the Internet and SNSs, which in turn increases their risk of becoming cyberbullying victims (Yoo et. al., 2014; Çelik, Atak, & Erguzen, 2012). Therefore, individuals who spend more time on SNSs are more likely to be a victim of cyberbullying than those who spend less time (Juvonen & Gross, 2008).

#### ***Gender and cyberbullying victimization***

Many previous studies have investigated the gender difference in *prevalence of cyberbullying victimization*. Many studies have found that there were no significant differences between females and males in *prevalence of cyberbullying victimization* (Slonje & Smith, 2008; Ybarra & Mitchell, 2004; Li, 2006; Hinduja & Patchin, 2008; Smith et. al., 2008; Makri-Botsari & Karagianni, 2014). On the other hand, some studies found that females are more likely to be victims of cyberbullying than males (Kessel Schneider, O'Donnell, & Smith, 2015; Kowalski & Limber, 2007; Wang et. al., 2009; Sourander et. al., 2010; Tsitsika et. al., 2015). According to Griesel, Finger, Bodkin-Andrews, Craven and Yeung (2012), males are more likely to use direct forms of aggression (physical or verbal than females; meanwhile, females are more likely to use indirect forms of aggression than males (social exclusion or spreading rumors) (Dilmaç, 2009). Therefore, females can increase the risk of *cyberbullying victimization*.

#### ***Age and cyberbullying victimization***

Similar to gender, many previous studies have investigated the age difference in prevalence of cyberbullying victimization (DeSmet et al., 2018; Tsitsika et al., 2015). DeSmet et.al., (2018) reported that there is no age difference in prevalence of cyberbullying victimization. However, M.-J. Wang et al (2019) demonstrated that younger individuals are more likely to be a victim of cyberbullying than older individuals. On the other hand, Tsitsika et. al. (2015) indicated that older adolescents have a higher risk of cyberbullying victimization than younger adolescents. Therefore, age was associated with cyberbullying victimization.

### ***This study***

This study aims to find out whether self-esteem, social support, depression, age, gender, and time spent on SNSs were associated with the likelihood of cyberbullying victimization. Based on previous researches, some of the following hypotheses were proposed:

Hypothesis 1. Students with low self-esteem are more likely to be victims of cyberbullying than their higher self-esteem peers.

Hypothesis 2. Students with low social support are more likely to be victims of cyberbullying than their higher social support peers.

Hypothesis 3. Students with high depression are more likely to be victims of cyberbullying than their lower depression peers.

Hypothesis 4. Students who spend more time on SNSs have a higher chance of being the victim of cyberbullying than those who spend less time.

Hypothesis 5. Females are more likely to be a victim of cyberbullying than males.

Hypothesis 6. Age would be associated with cyberbullying victimization.

## **2.2. Methods**

### **2.2.1. Participants**

Data for this study was collected in May and June 2019. This research has been approved by university leaders. It has also received the consent of all participants. The sample size was determined by Slovin's formula ( $N = 40000$  and  $e = 5\%$ ). Participants were 859 university students, 40.86% were male (351 students) and 59.14% were female (508 students); 32.1% were four – year students (276 students), 36.2% were third – year students (311 students), 30.5% were **second-year students** (262 students) and 1.2% were first-year students (10 students), aged 17 to 25 years old (Mean = 20.742; SD = 1.121). Participants were asked to complete the scales (Rosenberg Self-Esteem Scale, Depression, Anxiety and Stress Scales 21, Perceived social support scale and time spent on SNSs). It takes students about 15 to 20 minutes to complete the questionnaire. Finally, there were 859 valid questionnaires, with an effective rate of 100%.

### **2.2.2. Measures**

#### **2.2.2.1. Dependent Variables**

**The cyberbullying victimization scale (CVS, Patchin & Hinduja, 2010):** The Vietnamese version of CVS (Pham and Tran, 2016) was used to measure the frequency of cyberbullying experiences among university students over the past month. The Vietnamese version of CVS includes 6 items measured on Likert scale, ranging from 0 (never) to 4 (very day). **Sample items include “I have received vulgar messages/pictures online or by phone” and “Someone has spread rumors about me online or by phone”.** The total score ranges from 0 to 24, higher scores reflect individuals being cyberbullied more often. **In this study,** the Cronbach's  $\alpha$  is 0.702.

#### **2.2.2.2. Independent Variables**

**Rosenberg Self-Esteem Scale (RES, Rosenberg, 1965):** The Vietnamese version of RSE scale (Nguyen, Wright, Dedding, Pham, & Bunders, 2019) was used to measure the self-esteem

of university students. The RSE includes 10 items measured on Likert scale, ranging from 0 (strongly agree) to 3 (strongly disagree), which contains five negative questions and five positive questions, of which negative questions are calculated in reverse. Sample items include "I feel I do not have much to be proud of" and "On the whole, I am satisfied with myself". The total score is from 0 to 30, the total score above 25 is considered high self-esteem and the total score below 15 is considered low self-esteem. Nguyen et. al. (2019) reported the Cronbach's alpha for Vietnamese students was 0.77. In this study, Cronbach's alpha is 0.723.

Perceived social support scale (PSSS, Zimet et. al., 1988): The Vietnamese version of PSSS (Dinh and Nguyen, 2010) was used to measure the social support of Vietnamese university students. There are 3 main sources of support including friends support (4 items), family support (4 items), and special person support (4 items). PSSS was measured on a 5-point Likert scale from 0 (very strongly disagree) to 4 (very strongly agree). The total score ranges from 0 to 48, with lower scores reflecting lower levels of social support. Sample items include "My family really tries to help me", "I am able to share my problems with my friends" and "There is a special person with whom I can share joys and sorrows". Dinh and Nguyen (2010) reported the Cronbach's alpha for the subscales were 0.61 (family support), 0.52 (friends support) and 0.71 (special person support). In this sample, the Cronbach's  $\alpha$  for family support, friends support and special person support subscales are 0.902, 0.900 and 0.918, respectively.

Depression, Anxiety and Stress Scales 21 (DASS 21, Lovibond & Lovibond, 1995): We used Vietnamese version of DASS 21 (Van Nguyen, Laohasiriwong, Saengsuwan, Thinkhamrop, & Wright, 2015) to assess the level of depression in students. DASS 21 includes three sub-scales of depression (7 items), anxiety (7 items) and stress (7 items). However, in the current study we only use seven items of the depression subscale. The depression subscale was measured on a 4-point Likert scale from 0 (never) to 3 (almost always). A sample item is "I felt I wasn't worth much as a person". The scores are summed and then multiplied by two. The scores range from 0 to 42, with lower scores reflecting lower levels of depression. Van Nguyen et. al., (2015) reported the Cronbach's alpha of depression subscale for Vietnamese Medical students was 0.81. In this sample, Cronbach's alpha is 0.797.

Time spent on SNSs: University students were asked about the daily time spent on SNSs (e.g., Facebook, Zalo and Instagram). Response options include: less than 1 hour, 1 to 3 hours, 3 to 5 hours, more than 5 hours). To explore the relationship between time spent on SNSs and cyberbullying victimization, time spent on SNSs was also treated as a dummy variable (1 = less than 1 hour a day, 2 = 1 to 3 hours a day, 3 = 3 to 5 hours a day and 4 = more than 5 hours a day).

### **2.2.3. Procedure**

To recruit participants, we contacted university leaders to ask for help. After being approved by the university leaders, we had a meeting with academic advisors. At the meeting, we asked for the help of academic advisors by scheduling meetings with students. During the meeting with students, we announced the purpose of the study, the criteria for recruiting participants and asked them to help by completing questionnaires. After completing the questionnaire, each student received a small gift from the researchers.

### **2.2.4. Statistical analysis**

SPSS software version 20.0 was applied to perform statistical analysis in this study. Statistical analysis includes descriptive statistics and the Binary logistic regression analysis. Descriptive statistics were used to identify the rate of cyberbullying victims and to determine the mean and standard deviation of self-esteem, social support and depression. The Binary logistic regression analysis was used to determine the effects of independent variables (Age, gender, self-esteem, social support, depression and time spent on SNSs) on dependent variable (cyberbullying victimization).

### 2.3. Results

According to Table 1, cyberbullying victimization was positively correlated with social support ( $r = 0.494$ ,  $p < 0.01$ ), depression ( $r = 0.175$ ,  $p < 0.01$ ), time spent on SNSs ( $r = 0.123$ ,  $p < 0.01$ ), gender ( $r = 0.538$ ,  $p < 0.01$ ) and age ( $r = 0.403$ ,  $p < 0.01$ ). However, cyberbullying victimization was negatively correlated with self-esteem ( $r = -0.463$ ,  $p < 0.01$ ).

**Table 1. Preliminary analysis**

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1)	_____					
(2)	-0.294**	_____				
(3)	-0.238**	-0.046	_____			
(4)	-0.068*	-0.002	0.135**	_____		
(5)	-0.463**	0.494**	0.175**	0.123**	_____	
(6)	-0.262**	0.275**	0.165**	0.019	0.538**	_____
(7)	-0.364	0.322**	0.056	0.023	0.403**	0.220**

Note: (1) Self-esteem; (2) Social support; (3) Depression; (4) Time spent on SNSs; (5) Cyberbullying victimization; (6) Gender; (7) Age; \*\*:  $p < 0.01$ .

To explore the impacts of self-esteem, social support, depression, time spent on SNSs, gender and age on cyberbullying victimization, we applied Binary logistic regression analysis. In the Binary logistic regression model, gender, age, time spent on SNSs, self-esteem, social support, depression were entered as independent variables; cyberbullying victimization (dummy coded: 1 = victims of cyberbullying, 0 = non-victims of cyberbullying) is dependent variable. The predictors are reliably distinguished sets between victims and non-victims of cyberbullying (Chi-square = 516.001,  $p < 0.001$  with  $df = 6$ ); the overall correct percentage of prediction was 88.8% (74.3% for non-victims of cyberbullying and 94.9% for cyberbullying victims); Nagelkerke's  $R^2$  was 0.643 indicating a small to moderate relationship between the independent variables (self-esteem, social support, depression, time spent on SNSs, gender and age) and cyberbullying victimization.

The Wald criterion has demonstrated that gender ( $\beta = 2.404$ , odd ratio = 11.067,  $p < 0.001$ ), age ( $\beta = 0.454$ , odd ratio = 1.575,  $p < 0.001$ ), time spent on SNSs ( $\beta = 0.486$ , odd ratio = 1.626  $p < 0.001$ ), self-esteem ( $\beta = -0.138$ , odd ratio = 0.871,  $p < 0.001$ ) and social support ( $\beta = 0.066$ , odd ratio = 1.068,  $p < 0.001$ ) has contributed significantly to increase the risk of cyberbullying victimization; however, depression ( $\beta = 0.037$ , odd ratio = 1.037,  $p > 0.05$ ) was not significant (see Table 2). Therefore, the most important factors influence the likelihood of cyberbullying victimization were gender, time spent on SNSs, age, self-esteem and social support.

**Table 2. The results of Binary logistic regression analysis predicting cyberbullying victimization from predictors**

Predictors	$\beta$ (SE)	Wald $\chi^2$	$p$	Odds Ratio
Gender	2.404 (0.235)	104.511	<0.001	11.067
Age	0.454 (0.106)	18.327	<0.001	1.575
Time spent on SNSs	0.486 (0.139)	12.285	<0.001	1.626
Self - esteem	-0.138 (0.024)	32.185	<0.001	0.871
Social support	0.066 (0.008)	69.792	<0.001	1.068
Depression	0.037 (0.019)	3.652	>0.05	1.037

## **2.4. Discussion**

Our study showed that 70.5% of participants reported cyberbullying victimization in the past 30 days. Compared with previous studies of Leung et al., (2018), Turan et al., (2011). The prevalence of cyberbullying victimization among university students was higher. The high prevalence of cyberbullying victimization among university students may be related to the development of information technology and the popularity of smartphones and the Internet. Moreover, Tran and Bui (2015) indicated that 99.0% of Vietnamese university students use electronic devices and the Internet. More frequent use of the Internet has been linked to cyberbullying (Rice et al., 2015). In addition, we have found that 67.0% of university students spent 3 hours or more per day on social networks. According to Tsitsika et. al., (2015), cyberbullying victimization was more frequent among adolescents using social networking sites for two hours or more a day.

The results indicated that five of the six researched variables, including gender, age, time spent on SNSs, self-esteem and social support were associated with increased risk of being cyberbullied among university students. Not in line with previous findings (Rose and Tynes, 2015), we found that depression did not increase the likelihood of being cyberbullied among students.

Consistent with the Hypothesis 1, this study found that low *self-esteem increased the likelihood of being cyberbullied*. This finding supports previous findings (Egan and Perry, 1998; Kirkham and O'Moore, 2001; Brewer & Kerslake, 2015). According to some researchers, individuals with low *self-esteem* may be considered as easy targets for cyberbullying (Egan and Perry, 1998). Cyberbullying perpetrators tend to look for victims who will respond to their cyberbullying behaviors, so perpetrators target individuals who are not confident or assertive. Therefore, individuals with low self-esteem are more likely to be cyberbullied than individuals with high self-esteem (Egan and Perry, 1998). According to Kirkham and O'Moore (2001), high *self-esteem* protects individuals from traditional bullying. We believe that high self-esteem protects individuals from cyberbullying. People with high self-esteem tend to cope effectively with cyberbullying, and they may feel comfortable and confident in the face the perpetrators. Therefore, perpetrators are less likely to target individuals with high self-esteem.

*Previous studies indicated that low social support increased the likelihood of being cyberbullied (Wang, Iannotti and Nansel, 2009). According to Cohen and Wills (1985), high social support can protect individuals in risky situations. From social support sources, individuals will have a sense of value, acceptance, a sense of security and an appropriate response.* Unexpectedly, we have found that high social support *increased the likelihood of being cyberbullied*, which does not support Hypothesis 2. This result may be related to poor quality of social support of university students. *According to Wade and Beran (2011), cyberbullying is a new field of research. In Vietnam, research on cyberbullying is at an early state (Chi et al., 2020). Therefore, little is known about cyberbullying as well as the risk or protective factors associated with cyberbullying. The above analysis has shown that, poor quality of social support increased the likelihood of being cyberbullied.*

*In line with previous studies (Kessel Schneider, O'Donnell, & Smith, 2015; Smith et. al., 2019; Tsitsika et. al., 2015), we found that female students are more likely than male students to be victims of cyberbullying. This finding supports Hypothesis 4. This result may be related to the gender difference in self-esteem and social support among university students. We found that female students (M = 18.41, SD = 8.52) have lower self-esteem than male students (M = 23.07, SD = 5.69) , so females are more likely than males to be targeted of cyberbullying perpetrators (Egan and Perry, 1998).*

Consistent with the Hypothesis 5, this study found that *time spent on SNSs* was positively associated with cyberbullying victimization. Accordingly, university students who spend more time



on SNSs are more likely to become victims of cyberbullying. This finding is in line with many other results (e.g., Gámez-Guadix et al., 2013; Tsitsika et al., 2015). Cyberbullying occurs when individuals use technology, the Internet and social networking sites. Therefore, university students who spend more time on SNSs have a higher chance of being the victim of cyberbullying.

In line with previous findings (Slonje & Smith, 2008), we have found that a significant *positive relationship between age and cyberbullying victimization*. Accordingly, older students are more likely than younger students to be victims of cyberbullying. We believe that this result may be related to the lower *self-esteem* of older students (see Table 2).

Our study has several limitations. Firstly, research data was collected at universities in central Vietnam, so the findings of this study should be carefully generalized to other regions (e.g., South and Northern Vietnam). Therefore, future studies need to expand the research area in Northern and Southern of Vietnam. Secondly, this study used self-reporting method and the recall bias is a limitation of the studies using self-reporting. Therefore, future studies should combine self-reporting methods with other methods to overcome disadvantages of the self-reporting method. Finally, this is a cross-sectional study, so it is not possible to determine causal relationships between variables. Hence, longitudinal studies are essential.

### 3. Conclusion

This is the first study on the factors related to *cyberbullying victimization* in the sample of university students. It examined the influence of self-esteem, depression, *social support* and time spent on SNSs, and demographic variables (gender and age) on the likelihood of being cyberbullied. The findings of this study can be the basis for building and developing programs to prevent Vietnamese students from being victims of cyberbullying. Accordingly, intervention and prevention programs should focus on improving self-esteem, improving the quality of social support and limiting the use of social networking sites. At the same time, in the process of building cyberbullying prevention programs, it is necessary to pay attention to the age and gender differences in the risk of cyberbullying victimization.

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