ORIGINAL ARTICLE

Cyberbullying behaviors among youth during COVID-19 pandemic in Thailand: a cross-sectional online survey

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Received: 24 April 2023 **Revised:** 20 June 2023 **Accepted:** 27 June 2023 **Available online:** September 2023
DOI: 10.55131/jphd/2023/210307

ABSTRACT

Cyberbullying prevalence was increasing among youth during the COVID-19 pandemic. This cross-sectional study aimed to explore the factors associated with cyberbullying behaviors among youth during the COVID-19 pandemic in Thailand. In total, 720 youths participated in this study, and an online questionnaire was used. The quantitative data were analyzed using descriptive statistics, and to determine the relationship of each factor with cyberbullying behaviors, univariate analysis was utilized (e.g., an independent t-test, Pearson's correlation coefficient, and one-way ANOVA). If a factor had a *p*-value less than 0.20, this factor was introduced into the multiple linear regression analysis. This study defines cyberbullying as aggression from a perpetrator who intends to make victims suffer and feel ashamed, unpleasant, and hurt through the use of digital technologies via mobile phones and the internet. The significant factors associated with cybervictimization were analyzed via multiple linear regression analysis. It was found that being female, having a very good family relationship, using the internet in leisure time, having social support, and cyberbullying-aggression perpetration experience were significantly associated with cyberbullying. These factors could be used to predict cybervictimization in 34.8% of cases. The main influencing factor was cyberbullying-aggression perpetration experience ($\beta = 0.500$). Social support was a significant protective factor against cybervictimization. Future research should focus on preventing cybervictimization by enhancing youth digital literacy.

Key words:
cybervictimization; perpetrator; social support; relationship; university students

Citation:
Saowanee Thongnopakun, Mereerat Manwong, Karunpong Phattaramarut, Sawitree Visanuyothin, Yuvadee Rodjarkpai, Chaiyanan Muanphetch, Niyom Junnual, Worarat Magteppong. Cyberbullying behaviors among youth during COVID-19 pandemic in Thailand: a cross-sectional online survey. J Public Hlth Dev. 2023;21(3):78-93 (https://doi.org/10.55131/jphd/2023/210307)

INTRODUCTION

Cyberbullying refers to "bullying with the use of digital technologies. It can take place on social media, messaging platforms, gaming platforms and mobile phones".[1] One study defined cyberbullying as "willful and repeated harm inflicted through the medium of electronic text".[2] Another study defined cyberbullying as "the use of information and communication technologies (ICTs) by an individual or group that has the intention of harming others who cannot defend themselves".[3] Similarly, Thai youth defined cyberbullying as "harming others through mobile phones and the internet".[4] This study defines cyberbullying as "aggression from a perpetrator who intends to make victims suffer and feel ashamed, unpleasant, and hurt through the use of digital technologies via mobile phones and the internet".

A study on 17 ASEAN university students during the COVID-19 pandemic showed that body mass index (BMI) and country including Thailand were significantly correlated with many behaviors dangerous for one's mental and physical health.[5] It was also reported that one-third of young people in 30 countries were cyberbullying victims, and about 20% skipped class because of cyberbullying and violence.[6] In Europe, Romania has the highest cyberbullying prevalence (37.3%), with the lowest found in Spain (13.3%).[7] Latin America has a wide range of cyberbullying prevalence (2.5% to 42.5%).[8] Another study determined a prevalence of cybervictimization between 13.9% in Canada and 57.5% in Spain.[9] The prevalence of cyberbullying and victimization in South Korea was found to be 34%.[10] Although the Philippines announced an anti-bullying law in 2013, 80% of youth still experienced cyberbullying in 2015.[11]

Another study concluded that accessing digital media and participating in online activities raises the risk of cyber harassment, bullying, and stalking.[12] In Thailand, use of the internet among adolescents increased during the COVID-19 pandemic by 1 hour and 3 minutes between 2019 and 2020, putting users at risk of cyberbullying.[13-16] A Thai study showed that the prevalence of cyberbullying was 70.7% during this pandemic.[17] In particular, Thai undergraduate students experienced cyberbullying at a rate of 86.7%.[18]

Alternative measures, including lockdowns, during the COVID-19 pandemic have affected the lives of youth through stress and study interruptions. Additionally, online platforms were used for education, resulting in a reduction of face-to-face communication, which increased time spent accessing the internet and social media. Adolescents exposed to cyberbullying can suffer from psychiatric disorders, which may lead to increased abnormal mental symptoms.[9, 19-22] In the United States, female university students experienced cyberbullying more often than males.[23] Additionally, female youth are more likely than male youth to be both perpetrators and victims of cyberbullying.[24] In contrast, a study in China revealed that male youth are more likely than female youth to be cyberbullying perpetrators, though there was no gender difference in victimization.[20] Additionally, a study revealed that parental warmth was a protective factor against cyberbullying[25]. However, an extremely enmeshed family relationship may increase the likelihood of cyberbullying.[26] Social support was important coping mechanism for youth facing cyberbullying.[27] Barriers to social support can increase severity of victimization state.[28]

Cyberbullying among youth can also result in self-harm and suicidal behaviors.[21] Most youth in the United States of America access the internet via their mobile phones, making it a gateway for cyberbullying.[22]

Likewise, 78.8% of the Thai population can access the internet,[29] especially Thai youth, who use the internet at a rate of 98.8% and mobile phones at a rate of 99.2%.[19] Under this background, the majority of youth believe that social media platforms should respond more seriously to cyberbullying.[30] Cyberbullying is a harmful, growing situation for youth in developing and developed countries, including Thailand. Consequently, cyberbullying leads not only to physical and psychosocial problems but also to teen suicide.[31,32] In addition, psychological distress, academic difficulties, loneliness, and reduced well-being are intermediate effects of cyberbullying among adolescents. Students with high levels of depression and stress but low levels of social adaptation were found to have a high risk of becoming cyberbullying victims.[3, 33] Moreover, two-thirds of youth witnessed cyberbullying but did not intervene.[24] Another study found that the victim, the bully, and those who witnessed the bullying behavior were likely to experience serious and adverse social, emotional, physical, and psychological effects.[34] Cyberbullying victims may also experience emotional and behavioral impacts,[35, 36] including suicidal ideation and suicide attempts.[37]

Cyberbullying among youth increased worldwide during the COVID-19 pandemic. However, there has been limited research on cyberbullying behaviors, especially among youth, during COVID-19.[18, 38-40] Therefore, this study aimed to explore the factors associated with cybervictimization behaviors among youth during the COVID-19 pandemic in Thailand. The results of this study are intended to help prevent cybervictimization among youth.

METHODS

Study design

This cross-sectional study was conducted from October 2020 to October 2021 during the COVID-19 pandemic.

Ethical approval for this study was approved by the Ethics Review Committee for Human Research Subjects, Burapha University (certification code: HU065/2563). The participants were informed about the objectives, data collection procedures, and potential risks and benefits before they decided to sign their informed consent. Their privacy was protected via confidentiality measures.

Population and sampling technique

The target population was government university students in Thailand. The sample size was calculated according to Lemeshow S, Hosmer DW, Klar J, Lwanga SK, and the World Health Organization,[41] with $\alpha = 0.05$, $p = 0.41$,[42] and $d = 0.041$. The total number of students was 553. After adjusting for a 30% attrition rate,[43] the total number was 719. However, we added one more participant, resulting in 720 respondents as the total sample size (n) in order to divide the respondents into four regions of Thailand.

Inclusion criteria were youths studying at the university who were at least eighteen years old and were taking either regular courses or special courses during 2020. Participants also had smartphones with internet connections. Exclusion criteria were youths who were not of Thai nationality.

Two-stage sampling was applied to recruit the respondents from four regions: the north region, the south region, the northeast region, and the central and east regions. Simple random sampling was conducted to select a university from each area, resulting in a total of four universities. Convenience sampling was then applied via print and online postings considering the details of this study, including the inclusion/exclusion criteria and using a quick response (QR) code to invite youth to answer the online questionnaire.

Research instruments

An online questionnaire was used to collect data. There were four parts of the questionnaire, which included 89 questions. First, 15 characteristics were identified, including gender, age, weight, height, university year, cumulative grade point average (GPAX), income, family relationships, current residential type, leisure activities, self-confidence, assertiveness and leadership, specific abilities, and relationship status. Second, there were 10 multiple-choice items related to cyber use experience, including mobile phone usage, types of online social networks used, frequency of using online social networks, average time spent using online social networks, times during which online social networks were used, and the main reason for using online social networks. Third, items related to social support as a way to prevent cyberbullying were constructed based-on social support theory, which had four aspects as follows: emotional support, instrumental support, information support, and appraisal support (House, 1981). The 12 items were measured using a 4-point Likert scale: 1 = never, 2 = sometimes, 3 = regularly, and 4 = always. The total score ranged from 12 to 48, with higher scores indicating high social support. Fourth, a self-report questionnaire was necessarily used as an online tool for data acquisition in this study due to the COVID-19 pandemic. However, there were limited self-reported measurements of cyberbullying.[44, 45] This study applied self-reporting with 24 items based on the validity and reliability of cyber-aggression perpetration and the victimization scale, Thai version,[45] which was translated from 24 items examining the validity and reliability of the cyber-aggression and cyber-victimization scale.[44] Two items were deleted after testing validity and reliability. The remaining 22 items were measured using a 5-point Likert scale with responses: 0 = never, 1 = rarely, 2 = sometimes, 3 = regular, and 4 = always. Cyber-aggression perpetration questions were items 1-10. Cyber victimization questions were items 11-22. The total scores of both were summarized along with the score for social support. The total score of cyber–aggression perpetration ranged from 0 to 40, and the total score of cyber victimization ranged from 0 to 48, with higher scores indicating high cyberbullying-aggression perpetration and high cyberbullying victimization, respectively.

Validity and reliability test of instruments

Three experts in the area of public health and youth behavior approved the total item objective congruence (IOC) of the questionnaire at 0.90. The IOC for social support as a way to prevent cyberbullying was 0.74, that of cyberbullying-aggression perpetration was 0.97, and that of cyberbullying victimization was 0.99. Then, a pilot questionnaire was distributed to 30 youths who were similar to the respondents. The Cronbach's alpha coefficient statistic calculated for social support was 0.86, and that calculated for cyberbullying-aggression perpetration was 0.94, cyberbullying victimization was 0.93 and cyberbullying behaviors was 0.94.[46]

Data analyses

Descriptive statistical analysis was presented demographic characteristics as the number and percentage for gender, university year, cumulative grade point average (GPAX), family relationships, current residential type, leisure activities, self-confidence, assertiveness and leadership, specific abilities, relationship status, cyber use experience; mobile phone use, types of online social networks used, and main reason for using online social networks (Table 1 and Table 2).

As it did not follow a normal distribution, descriptive statistical analysis was presented as the median and

interquartile range (IQR) for age, body mass index (BMI), income, frequency of using online social networks per week, and average time spent using online social networks per day. However, social support and cyber-aggression perpetration experience were presented as a mean and standard deviation (S.D.) since they followed a normal distribution (Table 1 and Table 2). To determine the relationship between characteristics, cyber use experience, social support, and cyber-aggression perpetration with cybervictimization behaviors, univariate analysis was utilized, including an independent t-test, Pearson's correlation coefficient, and one-way ANOVA. If a factor had a *p*-value less than 0.20, this factor was included in the multiple linear regression analysis.[47] A stepwise method was applied to select variables associated with cybervictimization behavior. A *p*-value less than 0.05 was considered significant, and the confidence interval of b was calculated at 95%. The data analysis used IBM SPSS Statistics version 23x86 through the Burapha University license.

RESULTS

The respondents included 720 youths from four universities in four regions of Thailand. The results showed that the majority of the respondents were female and had special abilities. The median age of the respondents was 20 years old with an average body mass index (BMI) of 20.9 kg/m^2. Forty percent of respondents had GPAX scores between 2.51 and 3.00. The median income was 5,000 baht (IQR = 2,925 baht). Two-thirds of the respondents had very good relationships with their families and no boyfriend or girlfriend. Half of the respondents lived in dormitories outside the university. The most common leisure activities were using the internet in leisure time (76.9%), watching movies (54.9%), and listening to music (50.8%). Most respondents had moderate levels of self-confidence. However, half of them were non-assertive and did not occupy leadership roles (Table 1).

Table 1. Demographic characteristics (n = 720)

Demographic characteristics	Number	Percentage
Gender		
- Male	105	14.6
- Female	615	85.4
Age (year) Median (IQR)	20.0 (2)	
Body mass index (kg/m^2) Median (IQR)	20.9 (5.3)	
University year		
- 1	234	32.5
- 2	222	30.8
- 3	255	35.4
- 4	9	1.3
GPAX (cumulative grade point average)		
- ≤ 2.00	12	1.7
- 2.01 – 2.50	189	26.3
- 2.51 – 3.00	288	40.0
- 3.01 – 3.50	170	23.6
- 3.51 – 4.00	61	8.5
Income (baht/month) Median (IQR)	5,000 (2,925)	
Family relationships		

Demographic characteristics	Number	Percentage
- Very good	456	63.3
- Good	253	35.1
- Not Good	11	1.5
Current residential type		
- Dormitory outside the university	375	52.1
- Dormitory in the university	306	42.5
- Home/relative's home	39	5.4
Leisure activities (can choose more than one item)		
- Sports	130	18.1
- Music	366	50.8
- Movies	395	54.9
- Reading	177	24.6
- Internet	554	76.9
- Shopping	131	18.2
- Entertainment	88	12.2
- Raising animals/plants	99	13.8
Self-confidence		
- High	113	15.7
- Moderate	531	73.7
- Low	76	10.6
Assertiveness and leadership		
- Have	335	46.5
- Non-have	385	53.5
Specific abilities		
- Yes	660	91.7
- No	60	8.3
Have had a boyfriend/girlfriend		
- Yes	281	39.2
- No	436	60.8

All of the respondents had mobile phones and were online every day for eight hours on average, primarily using the social media sites Instagram (64.2%) and Facebook (55.8%). The respondents' favorite time to be online was 8:01 pm to 00:00 am. The main reasons for using online social networks were to contact acquaintances (74.2%), follow the news of artists/celebrities (33.9%), and search for data/share knowledge (30.7%) (Table 2).

Table 2. Cyber use experience (n = 720)

Cyber usage experience	Number	Percentage
Mobile phone use		
Yes		
- IOS	397	55.1
- Android	323	44.9
No	-	
Online social networks (can choose more than one item)		
- Facebook	402	55.8
- Line	201	27.9
- Instagram	462	64.2
- Twitter	143	19.9
Frequency of using online social networks (days/week) Median (IQR)	7.0 (0)	
Average time spent using online social networks (hours/day) Median (IQR)	8.0 (5)	
Time spent using online social networks		
- 08:01–12:00	15	2.1
- 12:01–16:00	41	5.7
- 16:01–20:00	105	14.6
- 20:01-00:00	504	70.1
- 00:01–04:00	45	6.3
- 04:01–08:00	9	1.3
Main reason for using online social networks		
- Contacting acquaintances	534	74.2
- Seeking new friends	116	16.1
- Seeking boyfriends/girlfriends	33	4.6
- Updating status and profile	182	25.3
- Playing games	138	19.2
- Searching for data/sharing knowledge	221	30.7
- Following the news of artists/celebrities	244	33.9
- Following the news and content of products/services	215	29.9
- Inviting others to buy products/services	19	2.6
Social support Mean (S.D.)		24.29 (5.10)
Cyber-aggression perpetration experience Mean (S.D.)	17.00 (4.9)	

The univariate analysis results revealed that region, gender, age, family relationships, current residence, leisure activities (internet and entertainment), sources of cyberbullying (print/publication media), time spent using online social networks, the main reasons for using online social networks (seeking boyfriends/ girlfriends, playing games, and following the news and content of products/services), social support, and cyber-aggression perpetration experience were significantly associated with cyberbullying victimization ($p < 0.05$) (Table 3).

Table 3. Univariate analysis of factors related to cybervictimization behavior among youth

Factor	*p*-value
Region	0.012[a]
Gender	<0.001[b]
Age (year)	0.018[c]
Body mass index (kg/m^2)	0.438[c]
Level of study	0.295[a]
GPAX	0.249[c]
Income	0.37[c]
Family relationships	< 0.001[a]
Residential	0.003[a]
Leisure activities	
- Sports	0.145[b]
- Music	0.545[b]
- Movies	0.059[b]
- Reading	0.402[b]
- Internet	0.021[b]
- Shopping	0.370[b]
- Entertainment	0.003[b]
- Raising animals/plants	0.703[b]
Source of cyberbullying	
- Television	0.632[b]
- Print media	0.004[b]
- Teacher	0.060[b]
- Internet	0.630[b]
- Friends	0.710[b]
Self-confidence	0.944[a]
Assertiveness and leadership	0.981[b]
Talents	0.227[b]
Boyfriend/girlfriend	0.627[b]
Most-used social network sites	
- Facebook	0.471[b]
- Line	0.798[b]
- Instagram	0.180[b]
- Twitter	0.126[b]
Frequency of social network site usage (day/week)	0.997[c]
Average time of social network site usage (hours/day)	0.283[c]
Time spent using online social networks	0.001[a]
Main reason for using online social networks	
- Contacting acquaintances	0.056[b]
- Seeking new friends	0.708[b]
- Seeking boyfriend/girlfriend	0.044[b]
- Updating status and profile	0.827[b]
- Playing games	0.008[b]
- Searching for data/share knowledge	0.196[b]
- Following the news of artists/celebrities	0.245[b]

Factor	*p*-value
- Following the news and content of products/services	0.033[b]
- Inviting others to buy products/services	0.450[b]
Social support	<0.001[c]
Cyber-aggression perpetration experience	<0.001[c]

Note: [a] One-way ANOVA, [b] independent t-test, [c] correlation coefficient.

The factors with $p < 0.20$ in the univariate analysis were entered into the multivariate analysis as follows: region, gender, age, family relationships, residential situation, and leisure activities; consumption of movies and internet usage, entertainment, and source of cyberbullying; print media and education, usage of Instagram and Twitter social network sites, time spent using online social networks, and main reasons for using online social networks; and contacting acquaintances, seeking a boyfriend/girlfriend, playing games, searching for data/sharing knowledge, following the news and content of products/ services, social support, and cyber-aggression perpetration experience.

Finally, the significant factors associated with cyberbullying victimization were analyzed via multiple linear regression. It was found that being female (b = 1.872, 95% CI: 0.741 – 3.002), having a very good family relationship (b = 1.696, 95% CI: 0.867 – 2.524), using the internet in leisure time (b = 1.137, 95% CI: 0.213 – 2.206), having social support (b = (-0.100), 95% CI: (-0.183) - (–0.018)), and cyber-aggression perpetration experience (b = 0.672, 95% CI: 0.587 – 0.757) were significantly associated with cyberbullying victimization ($p < 0.05$). These factors were able to predict 34.8% of cyberbullying victimization. The main influencing factor was cyber-aggression perpetration experience (β = 0.500) (Table 4).

Table 4. Stepwise method for multiple linear regression analysis of factors related to cybervictimization behaviors among youth.

Factors	R^2	R^2change	b	S.E.	β	t	*p*-value	95% CI for b
- Cyber-aggression perpetration experience	0.312	0.312	0.672	0.043	0.500	15.463	<0.001	0.587, 0.757
-Very good family relationship	0.332	0.019	1.696	0.422	0.124	4.019	<0.001	0.867, 2.524
-Female	0.342	0.011	1.872	0.576	0.100	3.250	0.001	0.741, 3.002
-Using internet in leisure time	0.347	0.005	1.137	0.471	0.073	2.415	0.016	0.213, 2.206
-Social support	0.352	0.005	-0.100	0.042	-0.077	-2.380	0.018	-0.183, -0.018
Constant = 4.370, F= 77.734, $R^2 = 0.352$, $R^2_{adj} = 0.348$								

Therefore, cyberbullying victimization can be predicted as follows: Cyberbullying victimization = 4.370+1.872 (female) + 1.696 (very good family relationship) + 1.137 (using the internet in leisure time) – 0.100 (social support) + 0.672 (cyber-aggression perpetration experience).

In the equation, these significant factors (female gender, a very good family relationship, using the internet in leisure time, and social support) were adjusted. For example, if the score of cyber-aggression perpetration experience increased by one unit, the cyberbullying victimization score also increased by 0.672.

DISCUSSION

The results of the multiple linear regression analysis showed that certain factors had a significant relationship with cyberbullying victimization among youth. These factors were being female, having a very good family relationship, using the internet in leisure time, having social support, and cyber-aggression perpetration experience. These factors were found to predict 34.8% of cyberbullying victimization. The most influential factor was cyber-aggression perpetration experience (β = 0.500). The relationship between cyberbullying victimization and each factor after controlling for other factors is described in the following section.

Being female corresponded to a higher score for cyberbullying victimization (by 1.872) than being male, which is consistent with many previous studies.[9, 24, 48-50] This result is explained by females being more likely to use the internet for talking and sharing pictures with their friends, while males are more likely to play video games.[50] Evidence showed that females were both victims and perpetrators of cyberbullying.[24, 48] Most cyberbullying victims reported feeling uncomfortable, stressed, sad, and anxious, in addition to a desire for revenge.[48] However, many studies have shown that males experience more cyberbullying than females[10, 20, 51-54] or that there is no difference in cyberbullying experience between genders.[20]

Youth who had very good family relationships reported higher scores for cyberbullying victimization (by 1.696) than youth who did not have very good family relationships. In contrast, many studies highlighted that good family relationships are a protective factor against cyberbullying among youth.[25, 55, 56] This study found that very good family relationships were significantly associated with cyberbullying, victimization which conflicts with previous research. However, one study concluded that having too much of an enmeshed family cohesion and too little peer support can cause problems with emotional control and increase cyber-aggression perpetration and cybervictimization risk.[57] Furthermore, this study was conducted during the COVID-19 pandemic. The young respondents had to study online, resulting in diminished relationships with their friends but closer relationships with their family members. This situation affected the mental health of youth by increasing stress, anxiety, and depression. The responses highlighted the difficulties families face in adjusting to COVID-19. Eventually, the youth had emotional control problems that led to cyber- aggression perpetration and cyber-victimization.[58]

Youth who use the internet in their leisure time had higher scores in cyberbullying victimization (by 1.137) than those who did not use the internet for leisure activities. Using social media also led to cyber-aggression perpetration and victimization[59,60] especially during the COVID-19 era. There were many studies highlighting the increase in cyberbullying incidents during this pandermic.[13-18] The youth respondents in this study used the internet for an average of eight hours every day, mostly between 8 pm and 12 am. The main reasons for using social media, as found by the univariate analysis, were seeking boyfriends/girlfriends, playing games, and following the news and content of products/services. These findings were similar to those of two studies which showed that the more time youth spent on the internet playing games and searching for data, the more cyberbullying they experienced.[61, 62]

This study revealed that social support (emotional support, instrumental support, information support, and appraisal support) is a protective factor against cyberbullying, in accordance with many previous studies.[63-68] A one-point increase

in the score for social support reduced the cyberbullying victimization score by 0.100 points. Social support from friends and family can be either a protective factor or a buffer factor for cyberbullying. When youth face cyberbullying situations, they can tell their friends or family members. Even in a crisis, social support can make youth feel safe and part of the social world, enabling them to easily adjust and overcome a negative situation or crisis in their lives.[63-67] In other words, friends and family are the main online sources of emotional support, appraisal support, information support, and instrumental support, in agreement with social support theory. [69]

Cyber victimization experiences were significantly associated with cyber-aggression perpetration.[10,70,71] Likewise, in this study, for every one-point increase in the cyber-aggression perpetration experience score, the score of cyber victimization also increased by 0.672 points. This result may be because a person who has experienced cyberbullying is more likely to imitate this behavior and become a cyberbullying perpetrator themselves, according to social learning theory.[72]

In conclusion, being female, having a very good family relationship, using the internet in leisure time, having social support, and cyber-aggression perpetration experience were significantly associated with cyberbullying victimization. These factors were able to predict 34.8% of the occurrence of cyberbullying victimization. Although the present study covered all regions of Thailand, making it representative of cyberbullying among youth in the country during the COVID-19 pandemic, this research was not a cohort study and thus could not establish a causal relationship between independent and dependent factors.

RECOMMENDATIONS

To extend knowledge about cyberbullying, future research should focus on how to prevent cyberbullying behaviors and examine the effects of cyberbullying via cohort studies, focusing on the research and development of massive open online courses, applying knowledge management, and developing interventions to increase the responsibility of Generation Z youth among themselves and society. During any pandemic event with full or partial lockdown strategies, cyberbullying prevention strategies should be launched in order to protect youth from cyberbullying effects. This study highlighted that social support is a preventive factor. Therefore, peer pressure prevention and counseling systems in educational institutions should be implemented and strengthened. Moreover, digital literacy should be taught by educational institutions.

ACKNOWLEDGMENTS

The researchers would like to express their gratitude to all the informants, including the related staffs at the Faculty of Public Health at Burapha University for all their supports.

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