

Facebook Addiction and Its Relationship with Mental Health among Thai High School Students

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Objective: To investigate the relationship between Facebook addiction and mental health among high school students.

Material and Method: This cross-sectional analytic study was performed among 972 high school students from four provinces associated with high economic prosperity in Thailand: Bangkok, Chiang Mai, Ubon Ratchathani and Songkhla, utilizing a multistage cluster sampling technique. Facebook addiction was assessed using the Thai version of the Bergen-Facebook Addiction Scale (Thai-BFAS), while a Thai version of the General Health Questionnaire (Thai GHQ-28) was used for mental health evaluation. The relationship between Facebook addiction and mental health was analyzed through multiple logistic regressions.

Results: The prevalence of Facebook addiction and abnormal mental health were 41.9% (95% CI: 38.6, 45.2), and 21.9% (95% CI: 19.2, 24.8), respectively. After adjustment for confounding factors (sufficiency of household income, school location, level of education, GPAX, learning deficits and attention deficit hyperactivity disorder), the individuals identified as having Facebook addiction were discovered to be at a high risk of developing abnormal general mental health ($OR_{adj} = 1.7$, 95% CI: 1.1, 2.4), somatic symptoms ($OR_{adj} = 1.2$, 95% CI: 0.9, 1.7), anxiety and insomnia ($OR_{adj} = 1.3$, 95% CI: 0.9, 1.8), social dysfunction ($OR_{adj} = 1.5$, 95% CI: 1.1, 2.1) and severe depression ($OR_{adj} = 1.5$, 95% CI: 1.0, 2.2). Moreover, there were pronounced trends of increasing risk according to the level of Facebook addiction ($P_{trend} < 0.05$).

Conclusion: It was found that Facebook addiction among high school students could be associated with abnormal, general mental health status, somatic symptoms, anxiety & insomnia, social dysfunction, and severe depression. Therefore, it is essential that the relevant authorities educate young people about the mental health impacts linked with Facebook addictive usage and impose appropriate public health policies by screening Facebook addiction and mental health issues in risk groups.

Keywords: Facebook addiction, Mental health, High school students

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A study carried out by a joint collaboration between the National Statistical Office, Department of Mental Health, Thai Health Promotion Foundation, and Institute for Population and Social Research from 2008 to 2010 reported that 11.2% of Thai people aged 15 years and over had poor mental health⁽¹⁾. Over the last

ten years there has been a considerable explosion in the number and popularity of Social Network Sites (SNS). This popularity has been particularly marked in Thailand with Bangkok now recognized as the capital of Facebook with over 15.4 million users⁽²⁾. It is, therefore, quite possible that the rapid growth of SNS could affect individuals, families, inter-personal relationships and the community as a whole⁽³⁾. A study of mental health in Thailand by the Department of Mental Health in 2011 reported that adolescents aged 15 to 24 years old were the second most likely group of people to suffer from mental health problems, whereas

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the elderly aged over 60 years old were ranked first⁽⁴⁾. Young people are particularly vulnerable to developing physical and mental problems from excessive use of SNS such as Facebook, Google+ and Line^(5,6). This issue has drawn the interest of many researchers to the concept of “Social Network Site (SNS) addiction” which is categorized as one type of the “Internet Addiction”⁽⁷⁾. At this stage, it is important to note that “SNS addiction” and “Facebook addiction” are two terms which can be used interchangeably⁽³⁾.

There are many studies, which have shown that Internet addiction is a condition associated with psychiatric disorders, such as affective disorders, anxiety disorders and attention deficit hyperactivity disorder (ADHD). For example, 78% of German students who had internet addiction disorder had major depressive disorders, and a correlation was found amongst Internet addiction, depression and thoughts of suicide in South Korean adolescents⁽⁸⁾. Moreover, several studies have reported the physical impacts from internet addiction amongst high school students, especially sleep-related problems; 37.7% of these students had day-time hypersomnia and had higher prevalence of abnormal sleep related behaviors (insomnia, snoring, sleep apnea, bruxism and nightmares)⁽⁸⁾. In addition, teenagers who had Internet addiction also suffered from emotional problems, family relationship issues, academic problems, social dysfunction, and mental health problems⁽⁹⁾. However, in Thailand, there have not been any relevant studies about the physical and psychological impacts of Facebook usage among adolescents.

In order to address this lack of research, the present study aims to investigate the relationship between Facebook addiction and mental health in high school students at a large school by using a standardized tool; the Thai-Bergen Facebook Addiction Scale (Thai-BFAS; Cronbach’s alpha coefficient = 0.87) and the Thai version of the General Health Questionnaire-28 (Thai-GHQ-28; Cronbach’s alpha = 0.91). The results of the present study could be implemented in the process of planning guidelines for using social media appropriately and creatively helping to prevent the mental health impacts of the use of social media in the next generation of teenagers in Thailand.

Material and Method

Study design and population

This cross-sectional analytic study was administrated to 992 high schools students randomized through a multistage cluster sampling technique.

Twenty of these students failed to participate in the survey for lack of interest in the study. The first stage was a randomized selection which nominated 4 provinces from the top ten provinces with the greatest economic prosperity in Thailand⁽¹⁰⁾: Bangkok, Chiang Mai, Ubon Ratchathani and Songkhla. Then one of the large secondary schools in each province was randomly selected. “Large secondary school” was defined by using the reference of the Office of the Basic Education Commission, Ministry of Education⁽¹¹⁾. Two classrooms per stratum, 10th, 11th and 12th grade, were selected randomly. The participants who were current high school students were included, while the participants who did not complete the Thai-BFAS questionnaire were excluded. The sample size was estimated using a population proportion formula⁽¹²⁾. The variables in this formula were denoted as $Z_{\alpha/2} = 1.96$, prevalence of Facebook addiction (p) = 0.4327⁽¹³⁾, $q = 1 - p = 0.5673$, acceptance error (d) = 0.05 and design effect = 2⁽¹²⁾. According to this formula, the number of samples was multiplied by the design effect that was 756 participants. However, the authors prevented error in the data sampling by increasing the sample size by 10 percent; therefore, the final sample size stood at 832 participants.

Measurement

The authors invented a self-administrative questionnaire that consisted of three steps. The first step involved reviewing the associated literatures. After that, the questions were assessed by three experts one psychiatrist, one clinical epidemiologist and one statistician, and then revised appropriately. Finally, the questionnaire was pilot-studied amongst 30 secondary school students in Bangkok. The questionnaire was revised again before being accepted using. This questionnaire consisting of the following 3 parts:

Part 1

Demographic data such as gender, age, educational level, study program (sciences or arts), cumulative grade point average (GPAX), family member, parenting style (i.e. authoritative, authoritarian, permissive and uninvolved)⁽¹⁴⁾, sibling interaction (i.e. closeness and support, estrangement and non-intimate, and rivalry⁽¹⁵⁾), household income status educational level, leisure activities and number of friends.

Part 2

The Thai-BFAS was employed for screening Facebook addiction. The Bergen Facebook Addiction Scale (BFAS), self-report questionnaire, was developed

in 2011 by Cecilie Schou Andearssen, Torbjorn Torsheim, Geir Scott Brunborg, and Stale Pallesen from the Department of Psychosocial Science, the University of Bergen, The Bergen Clinics Foundation, Norway. The original questionnaire was in English and used for screening Facebook addiction in epidemiological studies and hospital based research. The Cronbach's alpha coefficient of the BFAS was 0.83 and three-week test-retest reliability coefficient was high ($r = 0.82$). The total score ranges from 0 to 24 points. The cutoff score for Facebook addiction is at least 12 points (e.g. scoring 3 or above on at least four of the six items), which use a polythetic scoring method in order to a liberal approach⁽¹⁶⁾. The original BFAS was authorized for translation and validation in Thai. After content validity and usability were approved by three Thai psychiatrists, the Thai-BFAS was adjusted again by the authors and back translated by an English expert. This final version was studied including the internal consistency and the three-week test-retest reliability performed in 30 pilot high school students in Bangkok. The Thai-BFAS had a Cronbach's alpha coefficient of 0.87 (95% CI; 0.78, 0.93), and the inter-class correlation coefficient was 0.80 (95% CI; 0.49, 0.92)⁽¹⁷⁾.

Part 3

The Thai GHQ-28 was used as a mental health screening test. The General Health Questionnaire (GHQ) was developed by Goldberg (1972)⁽¹⁸⁾ and had been translated into Thai and tested for reliability and validity by Nilchaikovit T and Sukying C (1996). GHQ is a screening test for mental health problems in communities, which have two key features: an inability to perform normal functions and the presence of difficult situations that cause distress. The internal consistency of Thai GHQ-28 (Cronbach's alpha) was 0.91 and the area under ROC curve was 0.90. Specificity was 88.2 percent and sensitivity was 81.3 percent, positive predictive value was 76.5 percent and the negative predictive value was 90.9 percent⁽¹⁹⁾. There are 28 multiple choice questions in total with four choices; each choice has a score of 0 and 1. The total score ranges between 0 and 28 points. The cutoff point is 5 points, which means abnormal mental health. The Thai GHQ-28 also has four sub-scales e.g. somatic symptoms, anxiety and insomnia, social dysfunction and severe depression.

Data collection

The data were collected from March to June 2014. The authors asked for permission to administrate

this research from homeroom teachers in each school.

The present study was approved by the Human Ethics Research Committee of Thammasat University; MTU-EC-PS-2-009/57.

Statistical methods

The Statistical Package for the Social Science (SPSS) version 16.0 was used to analyze descriptive statistics such as frequency, percentage, mean, median, standard deviation (SD), 95% confidence intervals (95% CI) and the statistical significance was set at $p < 0.05$. The association between Facebook addiction and mental health was investigated by using the binary logistic regression for crude odds ratio (OR_{crude}) calculation. Multiple logistic regressions were employed to estimate the relative association between Facebook addiction and mental health by using the maximum likelihood of odds ratios while controlling for potential confounding factors. According to the mental health survey from 2008 to 2010⁽¹⁾, Chen and Peng (2008), Kuss and Griffiths (2011), and Yang and Brown (2013)⁽²⁰⁻²³⁾, the covariates that need to be considered as possible confounders are gender, level of education, cumulative grade point average (GPAX), family status, amount of siblings, parenting style, sufficiency of household income, school location, history of learning deficits (LDs) or attention deficit hyperactive disorder (ADHD) and number of close friends. All postulated potential confounders were adjusted and deleted one-by-one in an entered approach. The criterion for the confounding effect is that if the adjusted odds ratio (OR_{adj}) value of the relationship between Facebook addiction and mental health changed more than 10% of the OR_{crude} , those variables were considered as confounding factors⁽²⁴⁾. In the final model, the confounding factors were school location, level of education, GPAX, sufficiency of household income, and history of LDs and ADHD.

Results

Characteristics of the participants

A total of 972 high school students were randomly sampled using multistage cluster sampling technique. There were 872 participants who were current Facebook users (89.7%) and 549 current Facebook users who were female (63.5%). The mean age of Facebook users was 16.6 ± 1.0 years and their GPAX was 2.9 ± 0.5 . Twenty-two participants (2.5%) were diagnosed as LDs (0.7%) and ADHD (1.8%). The percentage of the Facebook users had their parents living together were 76.2. In addition, 83.4 percent of

them were raised through an authoritative parenting style and none of them was raised through an uninvolved pattern. The percentage of having closeness and support sibling interaction was 73.1, while their sibling rivalry pattern was only 1.2 percent. Using the Thai-BFAS for screening Facebook addiction, the prevalence of Facebook addiction was 41.9% (95% CI; 38.6, 45.2). In the subgroup analysis, the prevalence of severe Facebook addiction and not severe Facebook addiction were 30.8% (95% CI; 22.9, 39.5) and 24.7% (95% CI; 19.3, 31.7), respectively. In the case of gender, the prevalence of Facebook addiction of male was more than female (47.5% and 38.3%, respectively). In addition, 10th grade students were addicted to Facebook more than the 11th and 12th grade students (46.3%, 32.4%, and 45.4%, respectively). Ubon Ratchathani was the province that had the highest prevalence of Facebook addiction (70.7%), while the prevalence of Facebook addiction in Bangkok, Chiang Mai and Songkhla were similar to each other (Table 1).

The prevalence of mental health problem specified by the Facebook addiction groups

Nine hundred ninety-one participants are currently Facebook users who appeared to have abnormal, general mental health. This means that the prevalence of general mental health problems of the current Facebook users was 21.9% (95% CI; 19.2, 24.8). In a subgroup analysis, the prevalence of somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression were 34.3% (95% CI; 31.1, 37.5), 32.3% (95% CI; 29.2, 35.6), 28.9% (95% CI; 25.9, 32.0), and 20.1% (95% CI; 17.3, 22.8), respectively.

A comparison analysis between groups of Facebook addiction and normal group, found that the prevalence of general mental health problems in the severe Facebook addiction group was higher than normal group (26.8%, 95% CI; 22.4, 31.6 and 18.3%, 95% CI; 15.1, 21.9, respectively). In the subgroup analysis, Facebook addiction group also had a higher prevalence of somatic symptoms, anxiety and insomnia, social dysfunction and severe depression, which were in Thai GHQ-28 sub-scales than normal group.

A comparison analysis between groups of severe Facebook addiction and not severe Facebook addiction group, found that the prevalence of general mental health problems in the severe Facebook addiction group was higher than not severe Facebook addiction group (30.8%, 95% CI; 22.9, 39.5 and 24.7%, 95% CI; 19.3, 31.7, respectively). In the subgroup analysis, the severe Facebook addiction group also

had a higher prevalence of the Thai-GHQ-28 sub-scales such as somatic symptoms, anxiety and insomnia, social dysfunction and severe depression than not severe Facebook addiction group (Table 2).

The association between Facebook addiction and mental health problem subgroups

In the present study, an association among the Facebook addiction groups and mental health status was discovered using the Thai-BFAS and the Thai GHQ-28. The Facebook addiction group had higher general mental health problems than the normal group ($OR_{crude} = 1.6$, 95% CI; 1.2, 2.3), whereas the severe Facebook addiction group was at the highest risk of abnormal mental health ($OR_{crude} = 2.0$, 95% CI; 1.3, 3.1). After adjusting for confounding factors (sufficiency of family income, school location, level of education, GPAX, and attention deficit hyperactivity disorders: ADHD or learning disabilities), it was found that the Facebook addiction group had a higher risk of general mental health problems than the normal group ($OR_{adj} = 1.7$, 95% CI; 1.1, 2.4), while the severe Facebook addiction group had the highest risk of abnormal mental health ($OR_{adj} = 2.6$, 95% CI; 1.5, 4.6).

In the subgroup analysis of the four sub-scales of the Thai GHQ-28, individuals with Facebook addiction were at a higher risk of somatic symptoms ($OR_{crude} = 1.2$, 95% CI; 0.9, 1.6), anxiety and insomnia ($OR_{crude} = 1.2$, 95% CI; 0.9, 1.6), social dysfunction ($OR_{crude} = 1.4$, 95% CI; 1.0, 1.9) and severe depression ($OR_{crude} = 1.9$, 95% CI; 1.3, 2.6). After adjusting for confounding factors (sufficiency of family income, school location, level of education, GPAX, and attention deficit hyperactivity disorders: ADHD or learning disabilities), it was found that the Facebook addiction group was at the higher risk of somatic symptoms ($OR_{adj} = 1.2$, 95% CI; 0.9, 1.7), anxiety and insomnia ($OR_{adj} = 1.5$, 95% CI; 1.1, 2.1) and severe depression ($OR_{adj} = 1.5$, 95% CI; 1.0, 2.2). Moreover, there were pronounced levels of mental health problems according to the level of Facebook addiction score ($P_{trend} < 0.05$) as shown in Table 3.

A comparison analysis between groups of severe Facebook addiction and not severe Facebook addiction group, found that individuals with severe Facebook addiction were at a higher risk of somatic symptoms ($OR_{crude} = 1.6$, 95% CI; 1.1, 2.3), anxiety and insomnia ($OR_{crude} = 1.3$, 95% CI; 0.9, 1.9), social dysfunction ($OR_{crude} = 1.5$, 95% CI; 1.0, 2.3) and severe depression ($OR_{crude} = 2.0$, 95% CI; 1.3, 3.2). After adjusting for confounding factors (sufficiency of family

Table 1. Characteristics of the subjects

Characteristics of the subjects	Facebook addiction groups								p-value [†]
	Total		Normal		FB addiction (not severe & severe)		Severe FB addiction		
	(n = 872)		(n = 507)		(n = 235)		(n = 130)		
	n	%	n	%	n	%	n	%	
Gender*									
Female	549	63.5	227	61.7	190	24.2	132	14.0	0.03 ^a
Age (year); mean (SD)	16.7 (1.0)		16.6 (0.9)		16.6 (1.0)		16.5 (1.1)		<0.001 ^b
Level of education									<0.05 ^a
10 th grade	309	35.4	166	53.7	91	29.4	52	16.8	
11 th grade	259	29.7	175	67.6	57	22.0	27	10.4	
12 th grade	304	34.9	166	54.6	87	28.6	51	16.8	
School location									<0.001 ^a
Bangkok	197	22.6	126	64.0	50	25.4	21	10.7	
Ubon Ratchathani	198	22.7	58	29.3	81	40.9	59	29.8	
Chiang Mai	213	24.4	139	65.3	45	21.1	29	13.6	
Songkhla	264	30.3	184	69.7	59	22.3	21	8.0	
GPAX; mean (SD)	2.9 (0.5)		3.0 (0.5)		2.9 (0.5)		2.9 (0.5)		0.3 ^b
Number of siblings*									<0.001 ^a
None	160	19.0	109	68.1	35	21.9	16	10.0	
1-2	605	71.9	362	59.8	165	27.3	78	12.9	
≥3	77	9.1	30	39.0	25	32.5	22	28.6	
Marital status of parents*									0.01 ^a
Living together	664	76.2	364	54.8	196	29.5	104	15.7	
Divorced	157	18.0	107	68.2	30	19.1	20	12.7	
Widowed	50	5.7	36	72.0	8	16.0	6	12.0	
Sufficiency of household income*									0.22 ^a
Insufficient	121	15.4	70	57.9	31	25.6	20	16.5	
Parenting style*									<0.001 ^a
Permissive	43	5.0	10	23.3	18	41.9	15	34.9	
Authoritative	724	83.4	439	60.6	186	25.7	99	13.7	
Authoritarian	101	11.6	56	55.4	30	29.7	15	14.9	
Sibling interaction*									0.10 ^a
Closeness and support	634	73.1	355	56.0	178	28.1	101	15.9	
Estrangement and non-intimate	63	8.5	38	60.3	17	27.0	8	12.7	
Rivalry	10	1.2	4	40.0	3	30.0	3	30.0	
No sibling	160	18.3	109	68.1	35	21.9	16	10.0	
Number of friends; mean (SD)	12.5 (38.3)		11.4 (16.8)		12.0 (14.9)		19.0 (97.5)		0.09 ^b
History of LD or ADHD*									0.04 ^a
ADHD	16	72.7	11	68.8	1	6.2	4	25.0	
LD	6	27.3	3	50.0	3	50.0	0	0	

* missing data but not more than 9.98 percent of total number; † compare between normal group and FB addiction group (included severe FB addiction and not severe FB addiction group); ^a = analyzed by Chi-square test; ^b = analyzed by One Way ANOVA

income, school location, level of education, GPAX, and learning disabilities), it was found that the severe attention deficit hyperactivity disorders: ADHD or Facebook addiction group was at the higher risk of

Table 2. The prevalence of mental health problems stratified by the Facebook addiction group

	Subgroup of Mental health problem																			
	Mental health problem				Somatic symptoms				Anxiety and insomnia				Social dysfunction				Severe depression			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%
Normal (507; 58.1; (54.8, 61.4))	93	18.3	15.1, 21.9	93	18.3	15.1, 21.9	166	32.7	28.7, 37.0	154	30.4	26.4, 34.6	132	26.0	22.3, 30.1					
FB addiction (365; 41.9; (38.6, 45.2))	98	26.8	22.4, 31.7	133	36.4	31.5, 41.6	128	35.1	30.2, 40.2	120	32.9	28.1, 38.0	94	24.7	20.3, 29.4					
Not severe FB addiction (235; 26.9; (24.0, 30.0))	58	24.7	19.3, 31.7	77	32.8	26.8, 39.2	82	34.9	28.8, 41.4	75	31.9	26.0, 38.3	58	25.1	19.3, 30.7					
Severe FB addiction (130; 14.9; (12.6, 17.4))	40	30.8	22.9, 39.5	56	43.1	34.4, 52.1	46	35.4	27.2, 44.3	45	34.6	26.5, 43.5	36	27.7	20.2, 36.2					
Total (n = 872)	191	21.9	19.2, 24.8	299	34.3	31.1, 37.5	282	32.3	29.2, 35.6	252	28.9	25.9, 32.0	174	20.1	17.3, 22.8					

Table 3. The association between Facebook addiction and mental health problem subgroups

FB addiction group	Subgroup of Mental health problem																			
	Mental health problem (n = 191)				Somatic symptoms (n = 299)				Anxiety and insomnia (n = 282)				Social dysfunction (n = 252)				Severe depression (n = 174)			
OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	
Normal	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref
FB addiction	1.6*	1.2, 2.3	1.2	0.9, 1.6	1.2	0.9, 1.6	1.4*	1.0, 1.9	1.4*	1.0, 1.9	1.4*	1.0, 1.9	1.9*	1.3, 2.6	1.9*	1.3, 2.6	1.9*	1.3, 2.6	1.9*	1.3, 2.6
Not severe FB addiction	1.5*	1.0, 2.1	1.0	0.7, 1.4	1.2	0.9, 1.7	1.3	1.0, 1.9	1.3	1.0, 1.9	1.3	1.0, 1.9	1.8*	1.2, 2.6	1.8*	1.2, 2.6	1.8*	1.2, 2.6	1.8*	1.2, 2.6
Severe FB addiction	2.0*	1.3, 3.1	1.6*	1.1, 2.3	1.3	0.8, 1.9	1.5	1.0, 2.3	1.5	1.0, 2.3	1.5	1.0, 2.3	2.0*	1.3, 3.2	2.0*	1.3, 3.2	2.0*	1.3, 3.2	2.0*	1.3, 3.2
Normal	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref	1.0	Ref
FB addiction	1.7*	1.1, 2.4	1.2	0.9, 1.7	1.3	0.9, 1.8	1.5*	1.1, 2.1	1.5*	1.1, 2.1	1.5*	1.1, 2.1	1.5	1.0, 2.2	1.5	1.0, 2.2	1.5	1.0, 2.2	1.5	1.0, 2.2
Not severe FB addiction	1.4	0.9, 2.1	1.0	0.7, 1.5	1.2	0.8, 1.8	1.4	1.0, 2.1	1.4	1.0, 2.1	1.4	1.0, 2.1	1.4	0.9, 2.2	1.4	0.9, 2.2	1.4	0.9, 2.2		
Severe FB addiction	2.6*	1.5, 4.6	2.0*	1.2, 3.4	1.4	0.8, 2.5	1.8*	1.1, 3.1	1.8*	1.1, 3.1	1.8*	1.1, 3.1	1.6	0.8, 3.0	1.6	0.8, 3.0	1.6	0.8, 3.0		
$P_{trend} < 0.05$			$P_{trend} = 0.04$			$P_{trend} = 0.12$			$P_{trend} = 0.03$			$P_{trend} = 0.09$			$P_{trend} = 0.09$			$P_{trend} = 0.09$		

^a Adjusted odds ratio after adjusting for sufficiency of household income, school location, level of education, GPAX, LD and ADHD; Ref = reference group; * $p < 0.05$

somatic symptoms ($OR_{crude} = 2.0$, 95% CI: 1.2, 3.4), anxiety and insomnia ($OR_{crude} = 1.4$, 95% CI; 0.8, 2.5), social dysfunction ($OR_{crude} = 1.8$, 95% CI; 1.1, 3.1) and severe depression ($OR_{crude} = 1.6$, 95% CI; 0.8, 3.0) (Table 3).

Discussion

In the present study, an association between Facebook addiction and the mental health status of Thai high school students was discovered using the Thai-BFAS and the Thai GHQ-28. The prevalence of Facebook addiction was 41.9%, whereas the prevalence of general mental health problems of the current Facebook users was 21.9%. In relation to the association between Facebook addiction and mental health status, the Facebook addiction group had a significant risk of developing abnormal mental health ($OR_{adj} = 1.7$), and there were pronounced levels of mental health problems in relation to the Facebook addiction scale ($P_{trend} < 0.05$). Thus, these results support the hypothesis of the present study that Facebook addiction is a risk to abnormal mental health.

Previous studies about Facebook addiction in Thai teenagers did not only did not fail employ any standardized tools, but also to assess the mental health impacts of Facebook usage⁽²⁵⁻²⁸⁾. The present study is the first study that has explored the relationship between Facebook usage and mental health in Thailand by using standard assessments. In other countries, there have been a number of studies about Facebook addiction in college and university students⁽²⁹⁻³³⁾, and those studies involved exploring the association between Facebook addiction and mental health status such as depression, insomnia, loneliness and social dysfunction. Consequently, the present study focused on the 4 sub-domains of the Thai GHQ-28, which was significant associations between Facebook addiction and social dysfunction ($OR_{adj} = 1.5$). Moreover, there were significant associations between the severe Facebook addiction group and somatic symptoms ($OR_{adj} = 2.0$), and social dysfunction ($OR_{adj} = 1.8$). The present study also draws parallels with a study carried out by Isabella Wolniczak et al (2013), on a sample of undergraduate students in Peru, which reported a significant association between Facebook dependence and poor sleep quality⁽²⁵⁾. Furthermore, Binnaz Kiran Esen et al (2013) found that university students with a high levels of internet use had a higher degree of loneliness when compared to students who had moderate and low degrees of internet use⁽³⁴⁾. However, the relationship between Facebook addiction and depression is sometimes controversial. For example,

although, Ozgul Orsal et al (2013) reported a significant positive correlation between the level of depression and the level of internet addiction among university students⁽³⁵⁾, Teague E. Simoncic (2012) reported that these was no association between Facebook use and depression among university students⁽³⁶⁾.

The strengths of the present study are an adequate sample size and multicenter collaboration. The authors calculated the sample size so that it was large enough to ensure adequate power and precision of results. Additionally, this study was designed to involve multicenter collaboration, which allowed for a larger sample size and improved a generalized application of the outcome. In addition to these strengths, the present study assessed Facebook addiction and mental health by using standard tools such as the Thai-BFAS and Thai GHQ-28. These improved the study and made it more reliable and valid.

There were several limitations of the present study. Firstly, the present study was a cross-sectional design; hence, this result cannot imply causation between Facebook addiction and mental health problems. However, the present study analyzed the association among Facebook addiction and mental health problems by using Odds ratio controlling any possible confounders. Thus, the present study could illustrate some risks of Facebook usage affecting the mental health status of Thai adolescents. Secondly, the present study assessed only FB addiction that could not represent all of SNS addiction. FB is a kind of SNS that include many sites (Google+, Line, Twitter, etc). Therefore, further study should be carried out to investigate other SNS in order to reflect the SNS addiction among Thai teenagers. Another limitation was the assessment of mental health by using the Thai GHQ-28, which is not a diagnostic criterion of psychiatric disorders. The Thai GHQ-28 is a screening test for mental health problems in communities and cannot evaluate or diagnose any psychiatric disorders that are affected by Facebook addiction. The results of the present study could only indicate the primary impacts of Facebook addiction on mental health. Further studies should be employ diagnostic criterion (the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; DSM-5, and the International Classification of Diseases and Related Health Problem 10th Revision; ICD-10) to define mental illness in people who are susceptible to Facebook addiction.

Conclusion

It was found that Facebook addiction among

high school students could be associated with general mental health problems such as somatic symptoms, anxiety, insomnia, and severe depression. Therefore, it is essential that the relevant authorities should educate young people about the mental health impacts from Facebook usage and impose appropriate public health policies by screening Facebook addiction and mental health issues in risk groups. Further studies should be done in order to confirm a definite causal relationship amongst Facebook addiction and mental health problems by employing a Cohort study design.

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Potential conflicts of interest

None.

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ความสัมพันธ์ระหว่างการติดเฟซบุ๊กกับภาวะสุขภาพจิตของนักเรียนไทยมัธยมศึกษาตอนปลาย

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วัตถุประสงค์: เพื่อศึกษาความสัมพันธ์ระหว่างการติดเฟซบุ๊กกับภาวะสุขภาพจิตของนักเรียนไทยมัธยมศึกษาตอนปลาย

วัสดุและวิธีการ: การศึกษาแบบภาคตัดขวางในนักเรียนไทยมัธยมศึกษาตอนปลายจำนวน 972 รายที่กำลังศึกษาอยู่ในโรงเรียนขนาดใหญ่ใน 4 เขตพื้นที่การศึกษา ได้แก่ กรุงเทพมหานคร อุบลราชธานี เชียงใหม่ และสงขลา โดยใช้วิธีการสุ่มแบบหลายขั้นตอน และใช้แบบสอบถาม Thai Bergen-Facebook Addiction Scale (Thai-BAFS) เพื่อประเมินการติดเฟซบุ๊กและ General Health Questionnaire ภาษาไทยฉบับ 28 ข้อ (Thai GHQ-28) เพื่อประเมินภาวะสุขภาพจิต วิเคราะห์ความสัมพันธ์ของการติดเฟซบุ๊กและภาวะสุขภาพจิตใช้สถิติ Multiple logistic regression

ผลการศึกษา: ความชุกของการติดเฟซบุ๊กเท่ากับร้อยละ 41.9 (95% CI: 38.6, 45.2) และความชุกของภาวะสุขภาพจิตไม่ปกติเท่ากับร้อยละ 21.9 (95% CI: 19.2, 24.8) ความสัมพันธ์ระหว่างการติดเฟซบุ๊กกับภาวะสุขภาพจิตเมื่อกำจัดอิทธิพลที่มาจากตัวแปรอื่น ได้แก่ ความพอเพียงของรายได้ครอบครัว เขตพื้นที่สถานศึกษา ระดับการศึกษา ผลการเรียนเฉลี่ยสะสม ผลการวินิจฉัยโรคสมาธิสั้นหรือโรคการเรียนรู้บกพร่อง พบว่าบุคคลที่ติดเฟซบุ๊กมีความเสี่ยงต่อการเกิดภาวะสุขภาพจิตไม่ปกติโดยรวม ($OR_{adj} = 1.7, 95\% CI: 1.1, 2.4$) กลุ่มอาการทางกายไม่ปกติเป็น 1.7 เท่า ($OR_{adj} = 1.2, 95\% CI: 0.9, 1.7$) กลุ่มอาการวิตกกังวลและนอนไม่หลับเป็น 1.8 เท่า ($OR_{adj} = 1.3, 95\% CI: 0.9, 1.8$) หน้าที่ทางสังคมบกพร่อง ($OR_{adj} = 1.5, 95\% CI: 1.1, 2.1$) และกลุ่มอาการซึมเศร้ารุนแรงเป็น 1.9 เท่า ($OR_{adj} = 1.5, 95\% CI: 1.0, 2.2$) เมื่อเทียบกับผู้ที่ไม่ติดเฟซบุ๊ก นอกจากนี้ยังพบว่าระดับคะแนนการติดเฟซบุ๊กที่เพิ่มขึ้นจะเพิ่มความเสี่ยงต่อการเกิดภาวะสุขภาพจิตไม่ปกติโดยรวมและรายด้านด้วย ($P_{trend} < 0.05$)

สรุป: การศึกษานี้พบความสัมพันธ์ของการติดเฟซบุ๊กของนักเรียนไทยมัธยมศึกษาตอนปลายและภาวะสุขภาพจิตไม่ปกติโดยรวม กลุ่มอาการทางกายไม่ปกติ กลุ่มอาการวิตกกังวลและนอนไม่หลับ และกลุ่มอาการซึมเศร้ารุนแรง ดังนั้นหน่วยงานที่เกี่ยวข้องควรให้ความรู้แก่เยาวชนเกี่ยวกับผลกระทบทางสุขภาพจิตจากการใช้เฟซบุ๊กและกำหนดนโยบาย ด้านสาธารณสุขเพื่อคัดกรองปัญหาการติดเฟซบุ๊กและปัญหาสุขภาพจิตในกลุ่มเสี่ยง
