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Original article

Social media addiction and self-esteem of high school students in Hat Yai municipality, secondary educational service area office 16, Thailand

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Background: Social media use has been increasing dramatically. Some evidences suggest that excessive use of social media may impact the level of self-esteem.
Objective: To explore the level of social media addiction, self-esteem and associated factors among high school students in Hat Yai municipality.
Methods: A cross-sectional descriptive design was employed with participation of 415 high school students in Hat Yai municipality. The instruments included a set of questionnaires to assess the demographic data and patterns of social media use, media addiction test (SMAT), Thai version of the Pittsburgh Sleep Quality Index (T-PSQI), Center for Epidemiological Studies-Depression Scale (CES-D) and revised version of social Thai Rosenberg Self-Esteem Scale (RSES).
Results: Among the subjects, fifteen point seven percent had social media addiction. Sixty-one point seven percent had moderate level of self-esteem, while twenty one point four percent had low level of self-esteem. Factors associated to social media addiction included using Instagram, depression, poor quality of sleep, long online duration on weekday and weekend. Factors related to low self-esteem were, namely: age ≤ 17 years old, poor relationship with father, depression and poor quality of sleep. Also, it is found that social media addiction was negatively correlated to self-esteem.
Conclusion: One over six of grade 10-12th high school students were classified as social media addiction. Social media addiction tended to significantly associate with lower self-esteem and depression. Therefore, it is suggested that high school students who are at risk should be screened for depression and the related parties should take an action in increasing students'self-esteem and decreasing social media addiction level.

Keywords: Social media addiction, self-esteem, high school students.

Social media is an online platform of interactions among people in virtual communities. The use of social media around the world is rapidly increasing these days. In Thailand, the number of social media users is increasing as well. According to the Thai National Statistical Office (NSO)[1] approximately 76.8% of adolescents and young adults use social media through Facebook, Twitter, Instagram and YouTube for obtaining information, entertainment, creating individual public profiles, interacting with friends, and meeting other people based on mutual interests. Social media empowers are active in daily life as it can promote more communication that overcomes barriers of distance and time. However, the excessive use of social media can lead to mental health problems such as low self-esteem, depression, anxiety, sleep disturbance or relationship problem.[2]

Self-esteem is considered an evaluative component of the self-concept and an attractive fundamental psychological construct as it can predict some outcomes such as happiness, achievement and

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life satisfaction. Development of self-esteem development has been increasing throughout adolescence and young adulthood.[3] The situational and environmental factors have an impact on the level of self-esteem.[4] In previous studies[5, 6], self-esteem was found negatively associated with social media addiction. Some teenagers may experience the benefits from social media for self-identification or interaction with other people. On the other hand, social media can engender the social exclusion or victimization feelings[7] and contribute to adolescent behavioral and emotional adjustment problems.[8, 9]

The primary objective of this study was to explore the prevalence of social media addiction and related factors among Thai secondary high school student from the southern part of Thailand. The secondary objective was to examine the level of self-esteem and related factors among these sample.

Materials and methods

This is a cross-sectional descriptive study. The targeted population were 6,468 high school students in Hat Yai municipality, Songkhla province. The inclusion criteria were all students aged between 14 - 19 years old and currently studying in grade 10^{th} to 12^{th}. The four biggest high schools which had more than 1,000 high students for each were selected for recruitment. The sample of 415 subjects was calculated by using the formula of Yamane and were selected by simple random sampling technic. Students who took leave for more than 3 months were excluded from this study.

All subjects and their parents were invited to provide information and given inform consent. All recruited participants was assessed by using the following questionnaires:1) a questionnaire assessed for demographic characteristics and the patterns of social media use; 2) social media addiction test (SMAT)[10], which was a self-rated questionnaire with cut-score of over 30 for diagnosis of social media addiction and had overall Cronbach's alpha coefficient 0.898; 3) The Revised version of Thai Rosenberg Self-Esteem Scale (Revised Thai RSES)[11], with the cut off scores lower than 26 indicates the low level of self-esteem and the overall Cronbach's alpha coefficient 0.86; 4) Thai version of the Pitttsburgh Sleep Quality Index (T-PSQI))[12], with the scores ≥ 5 indicates poor quality of sleep and the overall Cronbach's alpha coefficient 0.83; 5) Center for Epidemiological Studies-Depression Scale (CES-D)[12] with the cut off scores over 22 for diagnosis of depression and the overall Cronbach's alpha coefficient 0.86. The study was approved by the Institutional Review Board (IRB) of the Faculty of Medicine, Chulalongkorn University (IRB no. 264/2563).

Statistical analysis

The analyses were conducted using the SPSS program version 22.0. Data was expressed as mean ± standard deviation (SD). The collected data were analyzed for descriptive and inferential statistics. Chi-square, *t* - test, Pearson correlation coefficients and analysis of variance (ANOVA) were performed for examining the associated factors for self-esteem and social media addiction. Ordinal Logistic Regression was used to predict the factors associated with social media addiction. Binary Logistic Regression was also employed for predicting factors for low self-esteem by using the Forward Likelihood ratio. All factors were $P < 0.05$ was considered as significant difference.

Results

A total of 415 students were recruited to participate in this study for exploring their self-esteem, social media addiction and related factors related to them. The subject's age ranged from 14 to 19 years old; The majority of the subjects were female and only half of them had normal BMI.

Depression and poor quality of sleep was found in 37.8% and 67.7 % of the subjects respectively. Regarding the use of social media, most of them used Instagram (52.8%) and Facebook (50.4%). The average daily online duration was 5.29 hours on weekday and 8.38 hours on weekend. Addiction to social media defined by SMAT was found in 15.7 % of the subjects whereas 33.0% of them were classified as almost addiction and 21.4% had low level of self-esteem. The other characteristics of the participant in detail are shown in Table 1.

Chi-square and Fisher's exact test showed that the factors related to social media addiction were level of high school grade, YouTube, Instagram, type of application, depression and poor quality of sleep were associated with social media addiction ($P < 0.05$ and $P < 0.01$) and ANOVA test showed that younger age, more online duration on weekday and weekend was associated with social media addiction ($P < 0.01$) as shown in Table 2.

Table 1. Characteristics of high school students (n = 415).

Demographic characteristics	N	Percentage
Gender		
Female	117	28.2
Male	298	71.8
Age (years)		
14	1	0.2
15	69	16.6
16	148	35.7
17	130	31.3
18	63	15.2
19	4	1.0
Mean ± SD = 16.5 ± 1.0, Min = 14, Max = 19		
High school grade		
10^{th}	138	33.3
11^{th}	140	33.7
12^{th}	137	33.0
Program		
Sciences-Mathematics	342	82.4
English-Mathematics	39	9.4
Language - Arts (English/Japanese/Chinese/French)	34	8.2
Social media platform		
Instagram	219	52.8
Facebook	214	51.6
Youtube	142	34.2
Twitter	72	17.3
Online duration on weekday (Mean ± SD = 5.3 ± 2.7, Min = 1, Max = 24)		
Online duration on weekend (Mean ± SD = 8.4 ± 3.6, Min = 2 , Max = 24)		
Mental health		
Had Depression	157	37.8
CES - D score Mean ± SD =20.3 ± 6.7, Min = 7, Max = 46		
Quality of sleep		
Poor quality of sleep	281	67.7
PSQI score Mean ± SD = 6.4 ± 2.1, Min = 0, Max = 14		
Social media addiction		
Not addicted	137	33.0
Almost addicted	213	51.3
Addicted	65	15.7
SMAT score Mean ± SD = 22.5 ± 7.3, Min = 3, Max = 45		
Self-esteem		
Low level of self-esteem	89	21.4
Moderate level of self-esteem	256	61.7
High level of self-esteem	70	16.9
Revised Thai RSEC score Mean ± SD = 28.7 ± 4.2, Min = 14, Max = 40		

Table 2. Chi-square and ANOVA test of factors and social media addiction.

Factors	Social media addiction			*P* - value	Significant pairwise comparison
	Not addiction (n = 137) (1)(%)	Almost addicted (n = 213) (2)(%)	Addicted (n = 65) (3)(%)		
High school grade					
10th	46 (33.6)	66 (31.0)	26 (18.8)	0.048*	
11th	41 (29.9)	71 (33.3)	28 (20.0)		
12th	50 (36.5)	76 (35.7)	11 (8.0)		
Type of application					
1 App	91 (66.4)	145 (68.1)	30 (46.2)	0.014**	
2 App	26 (19.0)	38 (47.5)	16 (24.6)		
> 3 App	20 (14.6)	30 (14.1)	19 (29.2)		
Youtube					
User	49 (35.8)	61 (28.6)	32 (49.2)	0.008**	
Instagram					
User	64 (46.7)	110 (51.6)	45 (69.2)	0.010**	
Depression	30 (21.9)	92 (43.2)	35 (53.8)	0.000**	
Poor quality of sleep	74 (54.0)	155 (72.8)	52 (80.0)	0.000*	
Age					
Mean ± SD	16.52 ± 1.01	16.54 ± 0.98	16.18 ± 0.82	0.033*	(2) vs. (3)*
Online duration on weekday					
Mean ± SD	4.62 ± 2.77	5.49 ± 2.64	6.04 ± 2.42	0.001**	(1) vs. (2)** (1) vs. (3)**
Online duration on Weekend					
Mean ± SD	7.3 ± 3.54	8.77 ± 3.55	9.38 ± 3.21	0.000**	(1) vs. (2)** (1) vs. (3)**

*$P < 0.05$, **$P < 0.01$

The Ordinal Logistic Regression analysis was performed and showed that using Instagram, online duration ≥ 5 hours/day on weekday, online time duration ≥ 8 hours/day on weekend, depression and poor quality of sleep were significant predictors for social media addiction as shown in Table 3.

Table 3. The predictors of social media addiction tested by Ordinal Logistic Regression.

Factors	B	SE	*P* - value	OR	Adjusted OR (95%Cl)	
					Lower	Upper
Instagram	0.503	0.194	0.010**	1.654	1.129	2.424
Online duration on weekday ≥ 5 hr./day	0.491	0.245	0.046*	1.634	1.010	2.644
Online duration on weekend ≥ 8 hr./day	0.575	0.244	0.019*	1.778	1.101	2.871
Poor quality of sleep	0.634	0.219	0.004**	1.885	1.227	2.896
Depression	0.799	0.209	0.000**	2.224	1.476	3.353

*$P < 0.05$, **$P < 0.01$

Chi-square and Fisher's exact test examined for the factors related to self-esteem showed that poor relationship with mother and father, depression and poor sleep quality related with low self-esteem as shown in Table 4.

The Pearson's correlation coefficient showed that the scores of social media addiction, online duration on weekday, score of depression and quality of sleep was negatively correlated with self-esteem ($P < 0.01$) on the contrary, age were positively correlated with self-esteem ($P < 0.01$).

Binary Logistic Regression Analysis was performed and showed that age ≤ 17 years old, poor relationship with father, depression and poor quality of sleep were the significant predictors for low self-esteem as shown in Table 5.

Table 4. Chi-square test of factors and self-esteem.

Factors	Self-esteem				*P*- value
	Low self-esteem (n = 89)		Moderate, high self-esteem (n = 326)		
	N	%	N	%	
GPA					
< 2.5	9	10.1	14	4.3	0.065
2.5 - 3.49	42	47.2	183	56.1	
≥ 3.5	38	42.7	129	39.6	
Marital status of parents					
Married	64	71.9	250	79.7	0.352
Divorced, windowed, deceased	25	28.1	76	23.3	
Relationship with mother					
Good relationship	61	68.5	269	82.5	0.012*
Sometime conflict	19	21.3	42	12.9	
Always conflict	9	10.1	15	4.6	
Relationship with father					
Good relationship	51	57.4	249	76.4	0.002**
Sometime conflict	19	21.3	39	12.0	
Always conflict	19	21.3	38	11.6	
Depression	59	66.3	98	30.1	0.000**
Poor quality of sleep	75	84.3	206	63.2	0.000**

*$P < 0.05$, **$P < 0.01$

Table 5. The predictors of low self-esteem tested by Binary Logistic Regression.

Factors	B	SE	*P*- value	OR	Adjusted OR (95%CI)	
					Lower	Upper
Age ≤ 17 years old	0.896	0.439	0.041*	2.451	1.037	5.793
Poor relationship with father	0.601	0.269	0.026*	1.823	1.075	3.092
Depression	1.261	0.266	0.000**	3.530	2.098	5.939
Poor quality of sleep	0.741	0.331	0.025*	2.099	1.098	4.014

*$P < 0.05$, **$P < 0.01$

Discussion

This descriptive study explored the prevalence of social media addiction, self-esteem and related factors among high school students in Hat Yai municipality, Songkhla province.

Primary objective was to investigate the level of social media addiction which reported that 15.7% of the sample group were classified as addition to social media. In this study, most common social media applications used were Instagram and YouTube. The prevalence of social media addiction in this study was lower than the previous report of Vasupanrajit A.[14], which was conducted in a group of younger students in Bangkok in grade 7th to 9th , mean while the current study focused more on the higher grade and older students. Furthermore, the most popular platform of social media use in young generation has changed during the pasting years. Facebook used to be the most preferred application but Instagram and Twitter are more accessible and consume less time than Facebook and have got more attention nowadays. This could contribute to the lower prevalence of social media addiction.

The factors related to social media addiction of this study by using the ordinal logistic regression analysis were using Instagram, online longer then 5 hours/day on weekday and online longer then 8 hours /day on weekend, depression and poor quality of sleep. Usage of Instagram had more risk for social media addiction from our finding which was replicable with the reports of from Kircaburun K. *et al*.[15] and Yesilyurt F, *et al*.[16] which was used for traveling, promoting outdoor activities, connecting to people online and served more need for the young generation's life style.[17] The appearance comparison perception from Instagram marked them to expect for ideal life, body images and have impact on life satisfaction.[18] Longer online duration on social media was associated to social media addiction and congruent with the finding of Vasupanrajit A.[14] and Pernsungnern P, *et al*.[19] which showed online duration on social media = 2 hours/day on weekend and = 6.25 hours/day on weekend were associated with social media addiction, respectively. In line with two previous studies conducted in Hong Kong[20] and the Netherland[21], support the hypotheses that if they spent more time on social media, it would increase level of social media addiction.

Depression was also significantly correlated with the social media addiction in concordance with the previous study of Barry CT, *et al*.[8] and Weinstein A, *et al* [2], which suggested that social media use could be more psychological problematic than entertainment and lead them into more loneliness.[22] Whereas the previous study of Bai J, *et al*.[23] and Longobardi C, *et al*.[7] found that social media was positively affected to depression via an increase boredom proneness, decrease well-being and increases the risk exposure to cyber victimization. The quality of sleep in this study conformed with the literature of Vernon L, *et al*.[24] and Cheung LM, *et al*.[25] that found poor quality of sleep correlated with social media addiction. Because the users spent more time before sleep for social media surfing that shortened sleep duration. The perpetuating pattern of sleep could interrupt the normal physiologic release of melatonin[26] and worsen the cognitive performance, mood, immune function, metabolism, and circadian rhythms.[16]

Concerning the level of self-esteem, we found 21.4% of the participants had low level of self-esteem. The predicted factors were age = 17 years old, poor relationship with father, depression and poor quality of sleep.This is congruent with the previous study of Von ST. and Wichstrøm L.,[3] which showed that age was significantly correlated with self-esteem. For several self-esteem theorists[4] were believed that the construct of self-esteem is better conceptualized in terms of childhood, increased throughout the adolescence and young adulthood, and was declining during the midlife and old age.

Regarding the relation within families, we found the similar result was reported from the studies of Heaven P. and Ciarrochi J. [27] which suggested that authoritativeness parenting style was related to low self-esteem. Because family life is an important context which children experiences and build up structure of self-esteem and mentality. The parental emotional support, especially from fathers affected the girls more than the boys.[28] As one of every three subjects in this study were girls, poor relationship with their fathers seemed to be accounted for low self-esteem in this sample. Poor quality of sleep in this report also predicted low self-esteem which was similar to the study of Lemola S, *et al*.[29] that reported lower levels of self-esteem in the participants who slept longer than 9 hours and lower than 6 hours instead of 7 – 8 hours. Theoretically, this can be assumed that poor sleep quality affected the function of the prefrontal cortex, anterior cingulate, hippocampus and amygdala. As a result,

it cause hyperactivity of the hypothalamic-pituitary-adrenocortical axis and cortisol secretion , which impacted on emotionally and psychologically that turn into depressive symptoms, along with low self-esteem.[30]

As for low self-esteem was the symptom component found in people with depression, so we found that depression was significantly related factor for low self-esteem, similar to the report from the study of Moksnes UK, *et al*.,[31] that the low self-esteem and depression was strongly related. Moreover the scores of self-esteem was negatively correlated with social media addiction congruent with the finding of Thongpradab J.[32] Because social media is the tool that allowed people to design a public representation within a bounded system, it interacts with a list of users with whom they share the connection, and show the profiles of their list of connections and those made by others within the system.[33] Thus, they may receive negative feedback and expose for cybervictimization experience which is depressogenic and insults in self-esteem.

There were some limitations in this study. As this was a cross-sectional descriptive study conducting in the students of four high school students in Hat Yai Municipality. it would not be able to generalize our result to the other high school students in Thailand. Moreover, the subjects were recruited during June to December 2020 which had global pandemic of COVID-19 that may be the confounding factor contributing for the high score of depression and spending more time on social media to study online at home and social isolation from the pandemic situation. The results from this research can be utilized for promoting healthy lifestyle in teenagers, educating them to have appropriate amount of time spending on social media and the important of having optimal duration of sleep. However, further studies is needed to ascertain the prevalence of social media addiction and self-esteem in Thai high students after the pandemic of COVID-19 .

Conclusion

Social media addiction was found in 15.7 % of the participants. The factors significantly associated with social media addiction were usage of Instagram, depression, poor quality of sleep, online duration ≥ 5 hours/day on weekday and ≥ 8 hours/day on weekend On the other hand, low self-esteem was significantly associated with age ≤ 17 years old, poor relationship with father, depression, poor quality of sleep Social media addiction was negatively correlated to self-esteem and common in subjects with depression which may be the mediator for low self-esteem and social media addiction.

Conflict of interest

The authors, hereby, declare no conflict of interest.

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