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The role of academic procrastination on Internet addiction among Thai university students: A cross-sectional study

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Abstract

Background: The internet has become an inevitable tool for information-seeking and communication in today's modern era. However, ironically it has driven humankind to become more dependent, leading to addiction. Internet addiction has increased exponentially at all levels of society, especially university students, impeding their physical, psychological, and social well-being.

Objective: This study aimed to examine the relationship between academic procrastination and internet addiction and determine the influence of academic procrastination on internet addiction among Thai university students.

Methods: A cross-sectional study was conducted involving 470 participants selected through multi-stage cluster random sampling from a university in eastern Thailand. The data collection was conducted between 29 November 2022 and 27 January 2023. The data were gathered using a demographic data form, an internet addiction test, and a procrastination assessment scale for the students' questionnaire. Descriptive statistics, Pearson correlation coefficient, and simple linear regression were employed for data analysis.

Results: The results revealed that academic procrastination ($M = 49.68$, $SD = 12.61$) and internet addiction ($M = 65.26$, $SD = 5.60$) were at a moderate level. A positive correlation was identified between academic procrastination and internet addiction ($r = 0.33$, $p < 0.01$), indicating a low relationship. Academic procrastination also had a significant predictive power on internet addiction, accounting for 11.3% of the variance (R^2 adjusted = 0.113, $F(1, 468) = 59.583$, $p < 0.001$).

Conclusion: The findings indicated the significant role of academic procrastination on internet addiction. Therefore, it is crucial that nurses should formulate interventions by considering this factor and emphasize self-regulatory and time-management skills and practical ways to limit internet dependence. Furthermore, the findings suggest that nurses could assess the procrastination level among students, devise prevention strategies, and organize awareness campaigns to instill information about rational internet use that aids in mitigating the risks and preventing them from getting addicted.

Keywords

Internet addiction disorders; procrastination; students; Internet use; Thailand

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Background

The technological expansion has made internet usage inevitable in one's routine. Excessive internet indulgence has become customary in this "new normal" era (Jahan et al., 2021). Internet addiction could be referred to as an extreme form of internet use. It is defined as an uncontrollable preoccupation or strong impulse to use the internet, leading to psychological distress (Weinstein & Lejoyeux, 2010). Besides, internet addiction is denoted as behavioral or non-drug addiction (Milková et al., 2022; Vacek & Vondrackova, 2014; Zou et al., 2017). Global estimates reveal around 4.6 billion internet users as of 2021 (Kemp, 2021). In Southeast Asian countries, about 7.4% to 46.4% of internet addiction was reported among university students (Balhara et al., 2018). Internet addiction is accentuated in Thailand as it reflected an

increased prevalence rate among youth, accounting for 52.4% (Turnbull et al., 2018). The average hours of internet use have also tremendously increased above five hours per day (Park, 2012). Even though internet addiction has received much scholarly attention, the growth of internet usage has increased parallelly. However, variations in the universality of the prevalence rate in this phenomenon do exist (Shaw & Black, 2008). Alarmingly, internet addiction is accompanied by other addictions, such as substance abuse or gambling disorders (Ryding & Kaye, 2018). Its consequences are imminent and significantly impair one's physical and mental well-being, functionality, and social aspects (Davis, 2001). Therefore, the severity of internet addiction urges an extensive need to explore its determinants.

The youths feel that stepping into a university is stressful and challenging. In the pursuit of evading negative emotions

and forgetting reality, they indulge excessively in online activities leading to internet addiction (Liu et al., 2022b). Students view the internet as a pleasure-seeking mechanism and use it uncontrollably, thereby skipping their academic-related activities. The post-pandemic period has witnessed significant upheaval in students' educational life, leading to increased procrastination compared to the past (Chaturvedi et al., 2021; Lim & Javadpour, 2021). It is pertinent to address the relationship between procrastination behaviors and internet addiction among university students as there is a current educational paradigm shift from conventional to online learning and teaching environment. Academic procrastination refers to intentionally delaying study-related activities that hinder academic success. Procrastinators are present-oriented, lack planning and conscientiousness, and are highly susceptible to temptation (Svartdal et al., 2020). The attributes of academic procrastination include psychological beliefs, distraction, social determinants, poor time management, and laziness (Moonaghi & Beydokhti, 2017). International prevalence rates are estimated to be around 80 to 95% of procrastination tendencies in the student population (Hayat et al., 2020). When compared with other student groups, 70% of college students were found to procrastinate academic-related tasks, and around 50% faced severe problems due to procrastinating behaviors (Agoukei et al., 2019; Golestani Bakht & Shokri, 2013).

At the university level, high levels of procrastination led to students' dropout and failure to achieve academic goals (Aznar-Díaz et al., 2020). Moreover, these behaviors are common among undergraduate students compared to graduate students as they are far away from their families and confront new self-learning behaviors (Kachgal et al., 2001). This impetuous transition to a newer environment and sudden freedom influences their behavior and makes them spend their time frantically. Although, some studies have highlighted various reasons associated with the after-effects of the pandemic period, where they had difficulty to adapt online learning, financial problems in obtaining internet access, and interruptions in internet connections (Peixoto et al., 2021; Prasetyanto et al., 2022). Nearly one-third of the students procrastinate their academic-related activities, such as exam preparation, and holding weekly assignments, often accomplished by napping or watching videos, leading to poor academic performance, poor learning approaches, and lower life success (Pychyl et al., 2000). Besides, it is essential to note the variation in procrastination tendencies across the academic years, where a study theoretically explained the prevalence among first-year students due to internal attributions and external factors (Lee & Hall, 2020). In the context of relating academic procrastination with internet addiction, some studies pointed out academic procrastination as a significant predictor of internet addiction (Tras & Gökçen, 2020; Uzun et al., 2014). Anierobi et al. (2021) revealed that around 33.47% of undergraduate students exhibited high levels of academic procrastination and a strong relationship between social media addiction and academic procrastination.

It is paramount to investigate academic procrastination among Thai university students as one study stated that it could lead to monetary loss to the Government in case of providing student educational support, lack of supporting new graduates in the labor market, and personal financial loss.

Educational wastage in terms of student dropout could affect the societal level and indirectly impact the national economic level (Ratsameemonthon, 2015). Recent research demonstrated that students tend to relentlessly postpone their study activities to spend time online, leading to internet addiction (Malyshev & Arkhipenko, 2019). Some studies investigated academic procrastination among high school students (Habibi et al., 2021; Latipah et al., 2021). Only limited studies have explored procrastination from a cross-cultural perspective, and little is known about the incidence and correlation of procrastination in non-western settings (Klassen et al., 2008).

In Thailand, existing studies have investigated the influence of academic procrastination on other variables. For instance, a study found an association between parents' academic involvement and procrastination behaviors (Janta et al., 2019). Another study found a relationship between self-compassion and academic procrastination and the mediational role of shame and anxiety (Hajiazizi & Ho, 2015). Nevertheless, studies on academic procrastination and internet addiction among Thai university students are less documented. Internet addiction affects an individual holistically and is related to mental health, psychological symptoms, insomnia, social support, and suicidal ideations (Ghamari et al., 2011; Yang et al., 2019); hence, this study is necessary for nursing professionals as they play a significant role in promoting the quality of life and well-being of individuals.

Since internet addiction has adverse effects and nursing interventions addressing this phenomenon are scarce, the underlying factor needs to be identified. In this contemporary era, addiction nursing is a novel and growing specialty; however, compared with the existing studies that focus on substance abuse disorders, fewer studies focus on factors related to behavioral addictions such as internet addiction. Hence, this study attempted to fill this gap and obtain an in-depth understanding of internet addiction and its related factor. In addition, nurses could consider assessing the level of academic procrastinating behaviors while screening for internet addiction. Identifying maladaptive behaviors at an earlier stage could help rule out subsequent mental health disorders in later life.

Besides, this study aids nursing educators in identifying at-risk symptoms among students. Understanding academic procrastination is beneficial for two reasons; firstly, it will provide baseline information and serve as a guideline for mental health nurses in formulating interventions specific to the student population to lessen addiction tendencies. Secondly, the variable addressed in this study could help nurses respond to early symptoms of internet addiction and prevent problematic behaviors. Lastly, this study could guide nurses in the psychiatric mental-health area in structuring courses on addiction nursing or training programs in the future. Therefore, the study aimed to examine the role of academic procrastination on internet addiction among Thai university students.

Methods

Study Design

This study employed a cross-sectional study approach.

Samples/Participants

The participants were undergraduate students recruited from a comprehensive university comprising various academic disciplines in the eastern province of Thailand. The inclusion criteria were a) the students studying for the first time in the university, b) those aged above 18 years, and c) having internet access in their study setting. The exclusion criteria were a) the participants with a history of psychiatric mental illness and b) those receiving treatment for online addiction. The samples comprised students from health sciences, humanities and social sciences, and science disciplines. Four hundred seventy participants were recruited from the faculties using multi-stage cluster random sampling. The sample size was estimated using the [Krejcie and Morgan \(1970\)](#) method with a population proportion of 0.5, a confidence interval of 95%, and a marginal error of 0.5%, thus requiring a sample of 470 to conduct this study.

Instruments

The demographic form comprised two parts: the first part comprised students' socio-demographic variables that included age, gender, year of study, current grade point average, number of siblings, parental educational and occupational level, and the second part consisted of internet use variables such as average duration of internet usage other than academic activities, gadgets for internet use, and frequent setting of internet usage.

The Thai version of the internet addiction test by [Neelapajjit et al. \(2018\)](#) was used to measure internet addiction. It was developed by [Young \(1998\)](#). The Internet addiction test was a 20-item questionnaire that measures six components: salience, excessive use, neglect of work, anticipation, lack of control, and neglect of social life. This is a five-point Likert-type scale ranging from 0 (never) to 5 (always), and total scores range from 0 to 100. A score of 0 to 30 indicates no internet addiction, 31 to 49 reflects mild Internet addiction, 50 to 79 implies moderate internet addiction, and 80 to 100 indicates severe internet addiction. The Cronbach's alpha coefficient reliability was 0.93 in this study.

The procrastination assessment scale for students developed by [Solomon and Rothblum \(1984\)](#) was used to measure academic procrastination. This scale comprises six domains, including writing a term paper, studying for exams, keeping up with weekly reading assignments, academic administrative tasks, attendance tasks, and university activities in general. The cross-cultural adaptation of this questionnaire was performed using the back-translation technique outlined by [Brislin \(1986\)](#) to establish the conceptual equivalence between the original and adapted questionnaire. Initially, the English questionnaire was translated to develop the Thai version and subsequently back-translated to English and compared. The bi-lingual experts and the authors were involved in the translation process. This instrument comprises 18 items, rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). The possible scores range from 1 to 90, with higher scores indicating more procrastination in academic-related activities. This study had a Cronbach's alpha coefficient reliability of 0.92.

Data Collection

After obtaining formal ethical and administrative approval from the selected faculties in the university, the data collection was carried out between 29 November 2022 to 27 January 2023. Initially, the researcher contacted the head of the department and provided an advertisement flyer comprising details about the study process and the participants' eligibility criteria. The students participated in the online questionnaire survey and filled in Google Forms. A response limit option was set in Google Forms add-ons to limit the number of submissions so that the forms would close automatically when the expected samples were obtained. The survey explained the voluntary nature of participation, study objectives and process, confidentiality statement, and withdrawal at any time (before completion of data collection) without aftereffects, followed by a "consent by action" option. The expected duration for the survey completion was 45-60 minutes.

Data Analysis

Data were analyzed using the SPSS version 26 software. The sample characteristics of the participants and the variables such as internet addiction and academic procrastination were analyzed using descriptive statistics. The underlying assumptions were met. The Pearson correlation coefficient was used to determine the significant relationship between the study variables, and simple linear regression was employed to examine the influence of academic procrastination on internet addiction among university students in Thailand. The statistical analysis was set at 0.05 level.

Ethical Considerations

This study obtained ethical approval from the Institutional Review Board for Protection of Human Subjects in Research (approval# G-HS075/2565). Formal administrative permission was obtained from the study setting. Detailed information about the study regarding its objectives, procedures, potential risks, and benefits, voluntary nature was provided to the participants. Prior to answering the online questionnaire, the participants provided online consent indicating their voluntary participation and then filled out the responses. The participant's anonymity and confidentiality were ensured.

Results

Participants Characteristics

Four hundred seventy individuals from the comprehensive university completed the online questionnaire survey. The majority of the participants (71.1%) identified as females and were 19 years old (27.7%). A third of the participants (32.1%) were in their first year of study, and a similar percentage (31.3%) had a moderate grade point average. Regarding the participants' parents, nearly one-third completed their secondary education level (33.75%) and were employed in private enterprises (37.45%). Concerning internet usage patterns, almost three-quarters of the participants (75.3%) concurrently utilized multiple devices, such as mobile phones, university computers, and tablets. Additionally, a quarter of the participants (25.7%) frequently accessed the Internet while residing on the university campus or in dormitories.

Description of Selected Variables

Table 1 presents the descriptive analysis of academic procrastination and internet addiction. The overall mean scores of the internet addiction test were 65.26 (SD = 5.60). Amongst the subscales, salience had a relatively high mean score of 16.01 (SD = 1.60). Meanwhile, in the academic procrastination subscales, keeping up with weekly reading assignments had the highest mean value of 8.70 (SD = 1.38).

Table 1 Descriptive statistics of the study variables

Variable	Actual Range	Mean (SD)
Academic Procrastination		
Total score	1–90	49.68 (12.61)
Subscales score		
Writing a term paper	3–13	8.51 (1.44)
Studying for exams	3–14	8.53 (1.42)
Weekly reading assignments	4–14	8.70 (1.38)
Academic administrative tasks	3–12	8.50 (1.49)
Attendance tasks	3–13	8.23 (1.42)
University activities in general	3–15	8.59 (1.41)
Internet Addiction		
Total score	60–100	65.26 (5.60)
Subscales score		
Salience	15–25	16.01 (1.60)
Excessive use	6–10	7.12 (0.96)
Neglect of work	12–20	12.74 (1.30)
Anticipation	6–10	6.52 (0.87)
Lack of control	9–15	10.01 (1.35)
Neglect of social work	12–20	12.83 (1.36)

Analysis of Academic Procrastination and Internet Addiction

Table 2 shows a significant positive correlation between academic procrastination, its respective subscales, and internet addiction. Each subscale of academic procrastination, including writing a term paper ($r = 0.23, p < 0.01$), studying for exams ($r = 0.31, p < 0.01$), weekly reading assignments ($r = 0.22, p < 0.01$), academic administrative tasks ($r = 0.20, p < 0.01$), attendance tasks ($r = 0.25, p < 0.01$), and general university activities ($r = 0.13, p < 0.01$), displayed a significant positive correlation with internet addiction, indicating a low level of association.

Table 2 Correlates of the study variables

Academic Procrastination	Internet Addiction
	Correlation Coefficient (r)
Total score	0.33**
Subscales score	
Writing a term paper	0.23**
Studying for exams	0.31**
Weekly reading assignments	0.22**
Academic administrative tasks	0.20**
Attendance tasks	0.25**
University activities in general	0.13**

** $p < 0.01$

Table 3 displays the results of a simple linear regression analysis that demonstrates the influence of academic procrastination on internet addiction. The findings suggested that with each increase of one unit in academic procrastination, there was a corresponding increase of 0.267

units in internet addiction. The regression model's value of $\beta = 0.336$, R^2 adjusted = 0.113, $F(1, 468) = 59.583$, and $p < 0.001$, indicated that academic procrastination was a significant predictive factor of internet addiction, which accounted for 11.3% of the variance in internet addiction.

Table 3 Regression analysis on the influence of academic procrastination on Internet addiction

Variable	B	β	t	p -value
(Constant)	51.432		28.947	<0.001
Academic procrastination	0.267	0.336	7.719	<0.001

Note: R^2 adjusted = 0.113, * $p < 0.05$

Discussion

The current study aimed to explore the determining role of academic procrastination and its association with internet addiction among university students. To the best of our knowledge, this study is novel as it explores the role of academic procrastination on internet addiction in the Thai context. The findings revealed that academic procrastination was positively correlated with internet addiction. This implies the concomitant increase in internet addictive behaviors along with an increase in academic procrastination tendencies. In addition, the regression analysis indicated that academic procrastination significantly predicted internet addiction. In this study, nearly one-third of the participants were first-year students. It is imperative to be vigilant of the students' procrastination tendencies corresponding to the academic years as they tend to face problems related to self-control and personal autonomy, their new university experience with sudden independence, and novel socializing opportunities (Lee & Hall, 2020). Thus, it could be said that intentional chronic postponement of academic-related tasks could disrupt the students' educational and career success. Another possible fact is that the student's procrastination tendencies could be related to the living atmosphere. This study found that students frequently use the internet inside university campuses or dormitories where their peers often accompany them and have less parental control. Further, they tend to postpone academic activities to get immersed in online activities and receive instant pleasure (Kindt et al., 2019).

Many research scholars have established a link between academic procrastination and internet addiction. In this study, academic procrastination was positively correlated with internet addiction and was congruent with the existing studies that indicated the relationship (Lian et al., 2021; Osborn et al., 2020). The students postpone their study-related tasks to engage in online entertainment activities and miss evaluating their psychological state in cyberspace. Also, procrastinators actively indulge in online platforms to supersede the thoughts related to task achievement. From another viewpoint, students lack time consciousness, one of the attributes of academic procrastination, and thereby fail to distinguish between actual and perceived behaviors (Moonaghi & Beydokhti, 2017). Trailing on to another perspective of cognitive process, some experts stated that individuals with procrastination tendencies are prone to have ruminative thinking, low self-control, and time mismanagement, which mirrors the features of internet addictive behaviors (Kim et al., 2017; Liu et al., 2022a). Sometimes, students mishandle digital technology and

perceive the internet to solve real-life problems, simultaneously developing academic procrastination and addiction (Malyshev & Arkhipenko, 2019).

This study indicated that academic procrastination positively affected internet addiction. Some studies exist similar to these findings that found a relationship between academic procrastination and internet addiction (Geng et al., 2018; Teyfur et al., 2017; Tras & Gökçen, 2020). In addition, a study by Yang et al. (2019) indicated a significant relationship among undergraduate students. This relationship could be explained in another stance where a study stated that procrastination tendencies could impede self-regulation (Tan & Guo, 2008), and low self-control could indirectly lead to internet addiction. It is vital to note that academic procrastination is a complex phenomenon encompassing cognitive, behavioral, and social aspects (Setiyowati et al., 2020). Cerit (2019) argued that an individual's coping strategies decline gradually due to increased procrastination tendencies. They also experience anxiety, lack confidence following procrastination, and are more likely to develop internet addiction (Malyshev & Arkhipenko, 2019).

Yet, studies highlighted the mutual prediction between the two variables (Zhang et al., 2022). For instance, a study found that social media addiction positively correlated with academic procrastination among undergraduate students (Nwosu et al., 2020). Moreover, academic procrastination influences the student's career choices, and the student tends to acquire a 'failure identity' instead of a 'success identity' (Kandemir, 2014). To forget the negative reality, students indulge in the virtual world. Some literature also pinpointed that students' majors also influenced procrastination tendencies. For instance, some studies found high levels of academic procrastination among nursing students and stated the possible reasons as course and assignment overload, varied experiences during practical clinical hours, and frequent evaluation that affected concentration and led to decreased coping and learning outcomes (Ghaffari et al., 2021; Ravanipour et al., 2015; Sabry Abd El-Salam et al., 2022). Upon agreement, some scholars believed that individuals procrastinate due to overwhelmed responsibilities that, in turn, cause emotional and behavioral problems (Balkis & Duru, 2009; Quinn, 2019). Steel (2007) noted that self-control failure could also lead to procrastination tendencies. To sum up, it could be posited that problematic internet use increases as the students' procrastinating habits increase. Thus, early identification of at-risk individuals and the provision of timely support will aid them in showcasing their adaptive capabilities.

Limitations of the Study

This study has a few limitations. Firstly, since this study employed a self-reported questionnaire survey to investigate the sensitive areas, including academic procrastination and internet addiction, students may conceal some information. Secondly, conducting this study only at the university level poses a cautious interpretation while comparing other student groups at different education levels and settings. Therefore, future studies should address this phenomenon in diverse backgrounds. In addition, the cause-effect relationship could also be established through longitudinal studies.

Implications of the Study

The study findings shed light on the determinant of internet addiction from a different angle. This may guide the nurses to formulate interventions emphasizing self-management support skills. Nurses can organize group therapies involving families and students to educate them about the rational use of the internet and the harmful effects of heavy internet usage and improve their internet use behaviors. Moreover, nurses could provide training programs on conflict resolution, adaptive stress coping strategies, effective time management, and corrective programs to reduce procrastination and internet addictive behaviors. This study unraveled the overlooked phenomenon of procrastinating tendencies toward problematic internet use and guides to improve students' learning outcomes. Also, parents could spend quality time and effort to improve their socio-emotional skills.

Furthermore, this study indicated the students' frequent setting of internet use as a university campus or dormitories. Considering this, educational administrators could narrow down the internet services to specific online platforms to promote study-related activities in students. In addition, educators could shape the students' minds by discussing the negative repercussions of maladaptive internet use, encouraging creative and healthy activities, and incorporating effective time management training courses to regulate the students' behaviors and avoid procrastination tendencies. Consequently, devising emotion regulation strategies and on-campus counseling services could promote the students' mental well-being.

Conclusion

This study has contributed valuable insights into the relationship between academic procrastination and internet addiction among university students. The results suggest the potential for enhancing students' academic discipline as a preventive measure against internet addiction. Furthermore, the study sheds light on the roles of parents and educators, highlighting the significance of fostering self-regulated learning, psychological resilience, and effective time management skills to mitigate maladaptive behaviors. Given the promising indications of a relationship between academic procrastination and internet addiction, it is advisable to monitor students for procrastination tendencies and initiate appropriate interventions at an early stage. This proactive approach at the grassroots level could have a meaningful impact on addressing the issue.

Declaration of Conflicting Interest

The authors declared no potential conflict of interest in this study.

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Authors' Contributions

All the authors have made substantial contributions to the conceptualization, data acquisition, and interpretation of data. All the authors drafted and critically revised the manuscript for intellectual content,

read and approved the final version to be submitted, and agreed to be accountable for all aspects of the work and questions subject to the accuracy or integrity of any part of the work are appropriately addressed.

Authors' Biographies

Sivasankari Nadarajan is a PhD Candidate in the Faculty of Nursing at Burapha University, Thailand. She pursued her master's degree in Psychiatric and Mental Health Nursing specialty and master's in business administration in Hospital Management. Her research interests are internet addictive behaviors and other behavioral addictions among the youth.

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Data Availability

The dataset generated during and analyzed during the current study is available from the corresponding author upon reasonable request.

Declaration of Use of AI in Scientific Writing

Nothing to declare.

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