Validation of the Thai version of the burnout assessment tool for Thai undergraduates

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Abstract

Burnout has been mentioned for decades as one of the mental health concerns of people around the globe. In 2020, Schaufeli and colleagues developed a new burnout measure, the burnout assessment tool (BAT). The BAT consisted of four subscales: exhaustion, mental distance, cognitive impairment, and emotional impairment. Empirical studies have supported the psychometric properties of the BAT. However, there is no Thai version of the BAT for Thai undergraduates. Therefore, this study aimed to translate and validate the short version of the burnout assessment tool (BAT-12) with a Thai undergraduate sample. A total of 240 Thai undergraduates completed a Thai language and short version of the burnout assessment tool (BAT-12-TH). Internal consistency, convergent validity, and confirmatory factor analysis of the BAT-12-TH were examined. Findings revealed that internal consistency was high in all subscales except mental distance. Convergent validity was found with the Thai Perceived Stress Scale (PSS) and the Thai Mental Fatigue Scale (MFS). Evidence of confirmation factor analysis in Thai undergraduates was obtained. In conclusion, the BAT12-TH would be useful for assessing burnout in undergraduate students in Thailand.

Keywords: burnout, undergraduate students, scale validation, Thailand

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1. Introduction

Burnout among university students has been widely investigated in recent years. It can have a negative impact on students' mental health and academic achievement. This academic burnout occurs due to factors such as high academic workload, low self-efficacy, and lack of social support (Yang, 2004). Since the onset of the COVID-19 pandemic, university students have been more at risk of burnout due to overwhelming academic demands and intensified stressors such as online and distance learning and health and public measures (i.e., lockdowns, physical distancing, campus closure). Previous studies have indicated that burnout among university students is a cumulative phenomenon with a higher prevalence in recent years. For instance, Liu et al. (2023) examined 22,983 Chinese students and reported that more than half experienced burnout. Moreover, studies have shown that university students with burnout symptoms tend to show a high risk of dropout intentions (Turhan et al., 2023) and other mental health problems (Nagy et al., 2019)

Burnout was initially used to describe a negative occupational phenomenon. For instance, Maslach's burnout concept was a response to chronic work-related stress and consisted of three components: (1) emotional exhaustion, (2) depersonalization/cynicism, and (3) reduced personal accomplishment (Maslach & Jackson, 1986). Previous literature has demonstrated the negative impact of burnout on individuals' psychological health and well-being and its adverse impacts on individual working ability and quality (Maslach et al., 2017; Woon & Tiong, 2020; Yang et al., 2022). However, in the following years, the burnout concept has extended to cover other domains, including students and academic careers (Schaufeli et al., 2002; Shariatpanahi et al., 2022). Burnout syndrome is defined as a chronic

condition characterized by a state of complete depletion of individual energy associated with intense frustration with work activities (Maslach et al., 2001).

According to Arbabisarjou et al. (2016), academic burnout consists of three components: (1) exhaustion in an attempt to fulfill academic requirements successfully, (2) increased mental distance from one's studies and feelings of negativism or cynicism and (3) feelings of ineffectiveness in academic obligations. In 2019, Schaufeli and colleagues introduced a concept of burnout that includes both core and secondary symptoms. The core symptom consists of four components: exhaustion, mental distance, cognitive impairment, and emotional impairment. The secondary symptom consists of three components: psychological distress, psychosomatic complaints, and depressed mood. To assess burnout, Schaufeli et al. (2019) developed the BAT in two versions: the original with 23 items and a shorter version with 12 items. These tools demonstrated good reliability and validity. The BAT was translated into many languages and widely used worldwide. (Angelini et al., 2021; Sakakibara et al., 2020; Sinval et al., 2022). However, there was no Thai version of the BAT-12 (BAT-12-TH). This study, therefore, aimed to translate and validate the psychometric properties of the BAT-12-TH in a convenient sample of Thai undergraduate students. This study also assessed the extent to which the BAT-12-TH is associated with theoretical constructs proposed by Schaufeli et al. (2019). The study expected that the BAT-12-TH score would significantly correlate with other mental health concerns, such as mental fatigue and perceived stress. Thus, the four constructs can predict a significant percentage of burnout variance among Thai undergraduate students.

2. Research Objectives

This study has two objectives. The first objective is to examine the BAT-12-TH's psychometric properties, and the second objective is to validate its four theoretical constructs.

3. Research Methods

This quantitative descriptive study was part of the first author's doctoral dissertation. The study was approved by the Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University (COA No. 019/66).

3.1 Participants

A total of 240 undergraduate students aged 18 years or older who were enrolled at universities across the country during the academic year 2021 participated in this study. The participants consisted of two groups. The first group included 85 students to evaluate the psychometric properties and validate the theoretical constructs of the BAT-12-TH. The second group included 155 students to validate the convergent validity of the BAT-12-TH. The mean age for all students was 20.96 years old (±2.13). They were conveniently recruited and voluntarily participated in this study. To determine the sample size for the confirmatory factor analysis (CFA), Hair et al. (2010) suggest a minimum of 10 to 20 participants per item. Therefore, this study required at least 120 participants for the CFA analysis. For the Pearson product-moment correlation, 15-30 participants are recommended (Burns & Grove, 2005).

3.2 Instruments

The research instruments comprised the Thai version of the 12-item BAT, the Mental Fatigue Scale, and the Perceived Stress Scale.

3.2.1 The Thai version of the 12-item BAT-12-TH was translated from the original version of the BAT-12 (Schaufeli et al., 2019; 2020). The BAT-12-TH has four core components: exhaustion, mental distance, cognitive impairment, and emotional impairment. The BAT-12-TH was a self-report measurement with a 5-point frequency scale: 1 (never), 2 (sometimes), 3 (regular), 4 (often), and 5 (always), like the BAT-12 in the original English version. The higher score indicates a higher level of burnout. The Cronbach's alpha (*r*) for these components in this study were .77, .56, .83, and .70, respectively. The overall Cronbach's alpha (*r*) for the BAT-12-TH in this study was .87.

For the process of translation, the forward-backward translation process was used after obtaining permission from the developer of the BAT-12 original version. There were three steps in the translation: process. In the first step, the forward translation, the first author translated the original BAT-12 from English into the Thai version with cultural adaptations. An expert psychologist then checked language accuracy to ensure the correctness of the translation. In the second step, the backward translation, the first English-Thai bilingual individual, without having access to the original English version, translated the Thai version of the BAT-12 (obtained in the first step) back into English. This backward translation aimed to create another English version (referred to as the backward English version) that was independent of the original English version. In the third step, the second English-Thai bilingual individual compared the original English version (original) with the backward version (backward) item by item. If there were any instances where the meaning of a sentence or item was unclear, the bilingual individual made specific notes regarding those items. The process was repeated from the first step, making corrections and adjustments as necessary, until there were no further comments or uncertainties. This step

aimed to ensure the completion of the BAT-12-TH. According to Tyupa (2011), these three steps of the forward-backward translation ensure the accuracy and quality of the translation process, enhancing the content validity of the BAT-12-TH.

3.2.2 The Perceived Stress Scale (PSS)-Thai version was developed by Wongpakaran and Wongpakaran (2010) from the original version of Cohen et al. (1983). The PSS comprises ten items to measure the degree to which an individual perceives aspects of their life as uncontrollable, unpredictable, and overloading. The scale is a self-report measurement with a 5-point Likert scale ranging from 0 (never) to 4 (very often), indicating how often the respondent has felt or thought a certain way within the past month. Scores range from 0 to 40, with higher composite scores indicating greater perceived stress. The Cronbach's alpha of the PSS in this study was .81.

3.2.3 The Thai version of the Mental Fatigue Scale (MFS) was developed by Teerabussayawes (2019) from the original version by Johansson and Ronnback (2014). The MFS is a self-report measurement consisting of 15 questions that assessed mental fatigue, with scores 0-3 (a range of 0.5 scores in each level). Each question is scored on a scale of 0 to 3, with increments of 0.5, allowing for a more detailed evaluation of fatigue levels. This scoring system includes seven levels, each representing a higher 0.5 score. The items were fatigue, lack of initiative, mental fatigue, mental recovery, concentration difficulties, memory problems, slowness of thinking, sensitivity to stress, increased tendency to become emotional, irritability, sensitivity to light, sensitivity to noise, decreased sleep at night, increased sleep, and 24-hour variations (for clinic use). The Cronbach's alpha in this study was .90.

3.3 Data Collection

Before the data collection, ethical approval was obtained from the Ethics Review Committee for Research Involving Human Subjects, Health Science Group, Chulalongkorn University. Data were collected from university students across the country between February 2023 and June 2023. Participants were recruited conveniently and were asked to complete an anonymous questionnaire. All volunteer participants who gave informed consent filled out the questionnaire via a paper-pencil form or on the Qualtrics online survey platform.

3.4 Data Analysis

The descriptive statistics, the corrected item-total correlation (CITC), and Cronbach's alpha coefficient were employed to analyze the internal consistency and reliability of the BAT-12-TH. Confirmatory factors analysis (CFA) was conducted via AMOS v.29. The CFA was used to determine the fit of the four constructs of the BAT-12-TH to retain in the original BAT-12. Pearson's product-moment correlation was used to examine the convergent validity of the BAT-12-TH with the PSS and the MFS.

4. Research Results

4.1 Reliability To assess whether the BAT-12-TH has good psychometric properties, the corrected item-total correlation (CITC) and Cronbach's alpha coefficient were tested. The corrected item-total correlation (CITC) values for the subscales ranged from .20 to 77. The CITC values for all ranged from .27 to .64, the top three highest CITC values were observed for items 2, 8, and 7, with CITC values of .64, .63, and .62, respectively, suggesting strong correlations between these items and the

overall scale. Conversely, the top three lowest CITC values were observed for items 4, 11, and 3 and 12, with CITC values of .27, .46, and .52, respectively. This suggested acceptable correlations between the items and the overall scale. Overall, the internal consistencies of the BAT-12-TH and its four subscales were well above 0.70, except for the mental distance subscale. Cronbach's alpha coefficients ranged from .56 to .87 for the subscales and .87 for the total BAT-12-TH. Detailed results are provided in Table 1.

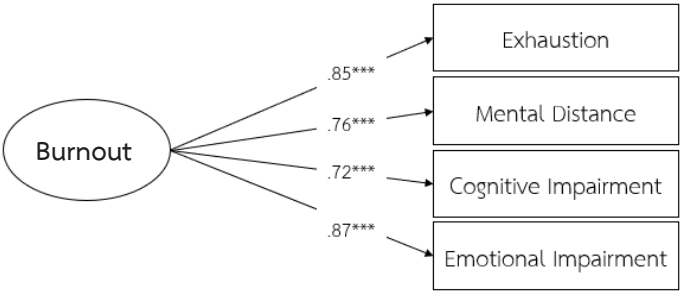
Table 1 The corrected item-total correlation and the Cronbach's alpha of the BAT-12-TH

Item	Original	Thai	M	SD	CITC (item)	CITC (all)
Factor 1 exhaustion, Cronbach's alpha, *r*= .77						
1	I feel mentally exhausted.	ฉันรู้สึกเหนื่อยใจ	3.49	0.89	0.64	0.61
2	At the end of the day, I find it hard to recover my energy.	ฉันพบว่าการฟื้นพลังในช่วงท้ายวันเป็นเรื่องที่ทำได้ยาก	2.98	1.12	0.62	0.64
3	I feel physically exhausted.	ฉันรู้สึกเหนื่อยกาย	3.44	0.98	0.58	0.52
Factor 2 mental distance, Cronbach's alpha, *r*= .56						
4	I struggle to find any enthusiasm for my work.	ฉันพยายามอย่างหนักกับการเรียนของฉัน	3.46	0.93	0.20	0.27
5	I feel a strong aversion toward my job.	ฉันรู้สึกเกลียดชังสิ่งที่ฉันเรียนมาก	2.30	0.94	0.53	0.54

Table 1 The corrected item-total correlation and the Cronbach's alpha of the BAT-12-TH (Cont.)

Item	Original	Thai	M	SD	CITC (item)	CITC (all)
6	I'm cynical about what my work means to others	ฉันดูแคลนสิ่งที่ฉันเรียนว่าจะมีความหมายกับใครได้	1.88	0.97	0.40	0.52
Factor 3 cognitive impairment, Cronbach's alpha, *r*= .83						
7	I have trouble staying focused.	ฉันมีปัญหาที่จะทำให้สมาธิคงอยู่	3.10	1.05	0.74	0.62
8	I have trouble concentrating.	ฉันมีปัญหากับการสนใจจดจ่อ	3.07	1.08	0.77	0.63
9	I make mistakes because I have my mind on other things.	ฉันทำผิดพลาดเพราะฉันให้ความสนใจต่อสิ่งอื่น	3.02	0.97	0.57	0.61
Factor 4 emotional impairment, Cronbach's alpha, *r*= .70						
10	I feel unable to control my emotions.	ฉันรู้สึกว่าฉันไม่สามารถควบคุมอารมณ์ตนเองได้	2.44	0.94	0.52	0.58
11	I do not recognize myself in the way I react emotionally.	ฉันจำการแสดงออกทางอารมณ์ของตัวเองไม่ได้	2.17	0.97	0.52	0.46
12	I may overreact unintentionally.	ฉันอาจจะตอบสนองเกินควรโดยไม่ตั้งใจ	2.85	1.03	0.50	0.54

4.2 Construct Validity The confirmatory factor analysis (CFA) supported the original assessment's concept of four core symptom components: exhaustion, mental distance, cognitive impairment, and emotional impairment. The basic assumptions for model testing revealed a Kaiser-Meyer-Olkin (KMO) value of .860, and the chi-square result for Bartlett's test of sphericity was significant (p< .001). The CFA model demonstrated a good fit with the following results: Chi-square = 55.408, df = 41; Chi-square/df = 1.351 (p= .07); GFI = .963; CFI = .986; TLI = .977; RMSEA = .038. Furthermore, each component showed factor loadings ranging from .72 to .87 (p< .001), indicating that all components were significantly related to burnout among university students. Therefore, the CFA results confirmed the burnout construct as defined by Schaufeli et al. (2019). (See *Figure 2)*



KMO=0.860, p<.001; Chi-square=55.408, df = 41
Chi-square/df= 1.351, p=.07; GFI= .963; CFI= .986; TLI= .977; RMSEA= .038

Figure 2 Results of confirmatory factor analysis of BAT-12-TH

4.3 Convergent Validity with Other Measures The BAT-12-TH demonstrated significant positive correlations with the Perceived Stress Scale (r = .77, p < .001) and the Mental Fatigue Scale (r = .61, p < .01). This means that the BAT-12-TH related theoretically to both the perceived stress and

mental fatigue constructs. The results provided support for the convergent validity of the BAT-12-TH.

Table 2 Descriptive Statistics and Correlation Coefficients among the BAT-12-TH and related Measures (*N*=85)

BAT dimensions	1	1.1	1.2	1.3	1.4	2	3
1. Burnout (BAT-12-TH)	1						
1.1 Exhaustion	.83**	1					
1.2 Mental distance	.82**	.67**	1				
1.3 Cognitive impairment	.85**	.52**	.55**	1			
1.4 Emotional impairment	.83**	.55**	.53**	.69**	1		
2. Perceived Stress Scale (PSS)	.77***	.69**	.59**	.62**	.65**	1	
3. Mental Fatigue Scale (MFS)	.61**	.57**	.49**	.51**	.44**	.60**	1
Mean	2.66	3.13	2.50	2.73	2.28	2.79	0.86
SD	0.79	1.07	0.78	1.08	0.90	0.69	0.47
Possible Range	1-5	1-5	1-5	1-5	1-5	0-4	0-3

*p<.05, **p<.01, ***p<.001

5. Discussion

The Thai and short version of the burnout assessment tool (BAT-12-TH) consists of four subscales: exhaustion, mental distance, cognitive impairment, and emotional impairment, as addressed in the original version by Schaufeli et al. (2019). In comparison to the forward translation method, the forward-backward translation method proved to be a more effective and reliable approach according to the three-step process. This is because in

addition to translating forward into the target language, the backward process was simultaneously employed to monitor errors stemming from inappropriate words or domains. Finally, the comparison between the two English versions of assessments can confirm the accuracy of the Thai version.

Moreover, the assessment's fundamental item quality and reliability were assessed. Findings from this study showed that the fundamental item quality of the BAT-12-TH was acceptable, as the CITC ranged from .20 to 74 for subscales and from .27 to .67 for the total scale. Reliability of the BAT-12-TH was at a reasonable level, with the overall Cronbach's alpha at .87 and the Cronbach's alpha of each subscale ranging between .56 and .87. The finding is consistent with the study of Popescu et al. (2023) in Romanian students. The basic psychometric properties are comparable to the values of the original scale presented in the manual (Schaufeli et al., 2020), thus suggesting that the BAT-12-TH is an adequate tool to measure burnout among Thai undergraduate students.

This study examined other psychometric properties of the BAT-12-TH in Thai university students. Confirmatory factor analysis was used to analyze and confirm the original structure of the BAT-12-TH, consisting of the four components. The results of the analysis provided support for the original structure of the BAT-12. The four subscale models of the BAT-12-TH among Thai undergraduate students yielded findings similar to those of Schaufeli et al. (2019). The factor loading range was .72 to .87, indicating that the factors could explain academic burnout among Thai undergraduate students. Regarding the factor loading of the BAT-12-TH subscales, the emotional impairment and exhaustion subscales demonstrate the highest factor loading. The emotional impairment subscale described negative emotions such as frustration, anger, irritability, sadness without apparent cause, and difficulty controlling emotions at work (Schaufeli et al., 2020). The exhaustion

subscale refers to physical and mental fatigue, a sense of tiredness, a lack of energy, and an inability to relax at work.

Previous studies found that students with burnout symptoms, fatigue, and low energy levels may express avoidance behaviors and disengagement from academic activities. (Alarcon et al., 2011; Schaufeli et al., 2002). Students may disengage in the school or university environment by being absent from classes or avoiding assignments (Pamungkas & Nurlaili, 2021), which might impact their academic achievement later. The other two factors, cognitive impairment and mental distance, with factor loadings of .72 and .76, respectively, described poor concentration and memory issues in the study. Mental distance was an early-stage indicator of burnout, described as a sense of detachment from academic activities, where individuals felt exhausted and disconnected (Popescu et al., 2022; Schaufeli et al., 2020). Burnout symptoms were related to an individual's level of engagement with academic activities. According to Schaufeli et al. (2002), engagement involves vigor, dedication, and absorption. While academic pressure and stress contributed to burnout symptoms, emotional intelligence was identified as one factor that could help prevent academic burnout. (Popescu et al., 2022; Shariatpanahi et al., 2022).

Finally, the criterion validity of the BAT-12-TH was assessed by analyzing the correlations between the BAT-12-TH and other relevant scales, the Thai Perceived Stress Scale (PSS) and the Thai Mental Fatigue Scale (MFS). The results indicated a significant and positive relationship among all the scales, the PSS and the MFS, suggesting good criterion validity.

However, it's important to note that the Thai version of BAT12 used in this study was designed specifically for evaluating academic burnout among undergraduates. Consequently, while the BAT-12-TH demonstrates promising criterion validity within this demographic, its suitability for other populations may be restricted.

6. Conclusion

Burnout among university students has been mentioned for decades as one of the mental health concerns of students around the globe. In 2020, Schaufeli and colleagues developed a new burnout measure, the burnout assessment tool (BAT). The BAT consisted of four subscales: exhaustion, mental distance, cognitive impairment, and emotional impairment. This current study validated the Thai and short version of the BAT (BAT-12-TH) among Thai undergraduate students. The results demonstrate acceptable psychometric properties of the BAT-12-TH with four structure components, as addressed in the original version of Schaufeli et al. (2019). The BAT-12-TH yields good convergent validity with the Thai Perceived Stress Scale (PSS) and the Thai Mental Fatigue Scale (MFS). The results of this study indicate that the BAT-12-TH can be a valuable measure for assessing burnout of undergraduate students in Thailand.

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