การศึกษาระดับของและปัจจัยต่อความเชื่อมั่นแห่งตนในการทำเวชปฏิบัติทางการแพทย์แผนไทยประยุกต์ของผู้สำเร็จการศึกษาหลักสูตรการแพทย์แผนไทยประยุกต์บัณฑิต

Self-efficacy and Its Influencing Factors in the Practice of Applied Thai Traditional Medicine Among the Graduates of the Applied Thai Traditional Medicine Program

นิพนธ์ต้นฉบับ **Original Article**

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาระดับและปัจจัยที่สัมพันธ์กับการรับรู้ความสามารถแห่งตนในเวชปฏิบัติการแพทย์แผนไทยประยุกต์ **วิธีการศึกษา:** การศึกษาภาคตัดขวางมีตัวอย่างคือ แพทย์แผนไทยประยุกต์ที่สำเร็จการศึกษาในปีการศึกษา 2552 – 2555 จำนวน 560 คน ประเมินโดยใช้แบบสอบถามลักษณะทางประชากรศาสตร์ การรับรู้ความความสามารถแห่งตนฯ ความยากในการปฏิบัติงานเวชปฏิบัติฯ สี่ด้าน (เวชกรรมแผนไทย หัตเวชกรรมไทย เภสัชกรรมไทย และผดุงครรภ์แผนไทย) และปัจจัยทั้งสี่ด้านของความสามารถแห่งตนฯ (ประสบการณ์ตรง ประสบการณ์จากตัวแบบ การโน้มน้าวทางวาจา และสภาวะด้านร่างกายและอารมณ์) ทดสอบความสัมพันธ์ด้วยค่าสัมประสิทธิ์ของเพียร์สันและการทดสอบค่าที **ผลการศึกษา:** คะแนนเฉลี่ยของการรับรู้ความสามารถแห่งตนฯ โดยรวมเป็น 171.91 จาก 250 คะแนน คะแนนเฉลี่ยความยากเป็น 104.22 จาก 250 คะแนน พบว่าเวชกรรมแผนไทย หัตถเวชกรรมแผนไทย และ ผดุงครรภ์แผนไทย มีคะแนนปัจจัย “ประสบการณ์ตรง” สูงสุด ตามด้วย “การเห็นตัวแบบ” โดยมีคะแนนมากกว่า 90 (จาก 100 คะแนน) ทั้งสองปัจจัย พบว่าเกรดเฉลี่ย ระยะเวลาจากจบจนได้งาน และจำนวนแห่งที่ทำงานสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับคะแนนความเชื่อมั่นแห่งตนฯ ด้านเวชกรรมแผนไทย เภสัชกรรมไทย และเวชกรรมแผนไทย ตามลำดับ (P-value < 0.05 ทั้งหมด) ผู้ที่ไม่เลือกเรียนวิชาด้านเวชกรรมแผนไทย หัตถเวชกรรมแผนไทย เภสัชกรรมแผนไทย และผดุงครรภ์แผนไทยมีคะแนนความเชื่อมั่นแห่งตนฯ โดยรวมสูงกว่าผู้ที่เลือกเรียนวิชาในด้านนั้น (P-value = 0.04, 0.001, < 0.001 และ 0.001 ตามลำดับ) **สรุป:** นักศึกษาแพทย์แผนไทยประยุกต์ควรเพิ่มความเชื่อมั่นแห่งตนต่อการปฏิบัติโดยเน้นการลงมือทำด้วยตนเอง รวมทั้งการใช้ตัวแบบ และคำพูดจูงใจ

คำสำคัญ: ความเชื่อมั่นในความสามารถแห่งตน; แพทย์แผนไทยประยุกต์; การศึกษา; เวชปฏิบัติ

Abstract

Objective: To determine level of self-efficacy in practicing the Applied Thai Traditional Medicine (ATTM) and its influencing factors. **Methods:** This cross-sectional study had 560 graduates from 2009 to 2012 as participants. Data collection was carried out using questionnaires collecting general information and assessing self-efficacy in ATTM practice activities including Thai medicine (Tmed), Thai massage (Tmas), Thai pharmacy (Tpharm), and Thai midwifery (Tmid), practice difficulty, and factors influencing self-efficacy (i.e., mastery experience, vicarious experience, verbal persuasion, and physiological and affective states). Associations were tested using Pearson’s correlation coefficients and independent t-test. **Results:** Mean score of overall self-efficacy was 171.91 out of 250 points while that of practice difficulty was 104.22 out of 250 points. Tmed, Tmas, and Tmid had the highest scores of the factors “mastery experience” and “vicarious experience” (> 90 of the possible 100 points). Grade point average, duration of applying for job, and number of workplace were significantly correlated with self-efficacy in Tmed, Tpharm and Tmed, respectively (P-value < 0.05 for all). Participants not taking courses of Tmed, Tmas, Tpharm, and Tmid had overall self-efficacy scores higher than those taking the respective courses (P-value = 0.04, 0.001, < 0.001 and 0.001, respectively). **Conclusion:** Self-efficacy of tudents in ATTM could be enhanced by more actual training based on mastery experience, and vicarious experience and verbal persuasion.

Keywords: self- efficacy; applied Thai traditional medicine; education; practice difficulty; clinical practice

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Introduction

Thai Traditional Medicine (TTM) is a comprehensive system of healthcare rooted in the accumulated wisdom of Thai ancestors, holding an enduring role in patient care and healthcare practices today. The field of Applied Thai Traditional Medicine (ATTM) integrates scientific knowledge with traditional insights, encompassing medical history taking, physical examination, diagnosis, treatment, prevention, and health promotion. TTM is organized into

four major disciplines namely Thai Traditional Medicine (TM) focusing on holistic care through elemental theories and diagnostics with various components as follows. Thai Traditional Massage (Tmas) uses therapeutic techniques to balance energy and alleviate ailments. Thai Traditional Pharmacy (TPHARM) involves herbal medicines for treatment and prevention. Thai Traditional Midwifery (Tmid) includes practices for maternal and reproductive health. Together, these components form a robust, culturally rich approach to health that continues to adapt and serve patients in modern healthcare settings.[1] Nowadays, many educational institutions provide the ATTM program. After graduation, ATTM practitioners must obtain a license to ensure professional standards and possess the required skills. These skills include herbal compounding, herbal dispensing, hot herbal compress application, hot herbal steaming, and providing advice on illness and stretching exercises.[2-4]

Self-efficacy, defined as an individual's belief in their capacity to achieve specific goals, is a critical factor in ATTM practice, as it directly impacts performance outcomes. While ATTM students acquire essential competencies and skills in academic settings, the real-life challenges encountered in clinical environments are often far more complex. New graduates frequently experience low self-efficacy, leading to stress, anxiety, and a diminished sense of self-assurance. This can impact their professional relationships by reducing trust and support from colleagues.

According to Bandura's self-efficacy theory, personal efficacy is shaped by four key factors namely 1) mastery experience where successful task completion reinforces capability, 2) vicarious experience where observing role models builds confidence, 3) verbal persuasion where positive encouragement enhances belief in task performance, and 4) physiological and affective states where emotional responses influence self-perceptions of competency.[5] A previous study assessing clinical self-efficacy in nursing students through Bandura's theory found that senior students exhibited low self-efficacy in areas such as communication, assessment, reporting, and medical history-taking skills.

This quantitative insight underscores the need for curriculum strategies that target and strengthen student confidence and competence in these essential skills.[6]

Currently, there is a lack of research on the self-efficacy of ATTM practitioners, particularly regarding their confidence in performing clinical practices. Understanding the self-efficacy of ATTM practitioners is essential to support their professional performance. This study aimed to identify factors that contribute to ATTM practitioners' self-efficacy and to determine their self-efficacy levels in clinical practice. The findings are expected to inform curriculum development, enhancing ATTM education to better meet professional standards across institutions. Additionally, this research may inform training programs designed to improve the knowledge and skills of ATTM graduates within the healthcare system, ultimately contributing to the quality of TTM and public health services. The results could ensure a highly effective ATTM workforce, better equipped to provide quality patient care within Thailand's healthcare system. Specifically, we aimed to determine the level of self-efficacy in ATTM practices and the factors associated with self-efficacy in the practice of ATTM across major disciplines, i.e., Thai Medicine (TM), Thai Pharmacy (TPHARM), Thai Massage (Tmas), and Thai Midwifery (Tmid), and to assess ATTM practitioners' self-efficacy levels and the practical challenges they encounter in clinical practice.

Methods

In this descriptive survey research, graduate practitioners were recruited from a pool of 1,025 individuals who completed a Bachelor of Applied Thai Traditional Medicine (B.ATM.) degree between the academic years 2009 and 2012. To be eligible, participants were required to hold a B.ATM. degree from that period and possess a valid ATTM license. A total of 560 eligible ATTM graduates responded with complete data.

Ethical consideration for participant protection

The study was approved by the committee for research ethics, faculty of social sciences and humanities, Mahidol University, Nakhon Pathom, Thailand (approval number: 2013/250.0209). The participants were informed about the objectives, process, and voluntary and anonymity nature of the study. Individuals could decline to participate or withdraw at any time without any negative consequences.

Research questionnaire

Data collection was conducted using self-administered questionnaires specifically developed for this study. The questionnaire consisted of four parts, as follows. The **first part** collected demographic characteristics age, sex, birthplace, occupation, income, marital status, educational and work experience. Specific items included grade point average (GPA), ATTM major during training, time taken to secure employment post-graduation, duration of current employment, field(s) of current practice, number of workplaces, workplace location, field(s) of current clinical practice, and additional learning or training experiences. Both open-ended and closed-ended questions were included.

Based on literature, the second to fourth parts were developed by the researchers to capture the multifaceted aspects of self-efficacy and practical challenges faced by ATTM practitioners. The **second part** was **practice difficulty** scale for ATTM practice. Participants were asked to rate how difficult each practice activity was with a scale of 1 (the least difficult) to 10 (the most difficult). These 25 practice activities included 6 practice activities for Thai Medicine (**Tmed**), 7 for Thai Pharmacy (**Tpharm**), 6 for Thai Massage (**Tmas**), and 6 for Thai Midwifery (**Tmid**). For example, for **TM**, the practices included medical history taking, physical examination, diagnosis, treatment prescription, patient referral, and patient advice; for **Tpharm**, crude herbal drug preparation, single herbal drug production, herbal formula production, single herbal drug compounding, herbal formula compounding, dispensing herbal drugs, and advice on herbal drug use; for **Tmas**, medical history taking, pre- and post-massage physical examination, basic massage, therapeutic massage, hot herbal compression, advice on illnesses and their specific therapeutic postures; for **Tmid**, hot salt pot compression, herbal scrub and paste application, hot herbal steaming, cloth abdominal support, hot charcoal seating, and postpartum care advice. The possible total difficulty score of all 25 practice activities was 250 points. The possible average total score of practice difficulty for each of the four components of ATTM was 1 – 10 points.

The **third part** was the **self-efficacy** scale for ATTM practice. The B.ATM graduates were asked to rate their self-efficacy (i.e., confidence) in performing 25 practice activities in each of the four ATTM components as previously described in the practice difficulty scale. Response format was a 10-point rating scale ranging from 1-the lowest confidence to 10- the highest confidence. The possible total self-efficacy score of all 25 practice activities was 250 points. The possible average total score of self-efficacy for each of the four components of ATTM was 1 – 10 points.

The **fourth part** contained questions to assess **factors influencing self-efficacy** (i.e., mastery experience, vicarious experience, verbal persuasion, and physiological and affective states) for each of the four components of ATTM practice. Participants responded to 110 statements representing the four influencing factors of self-efficacy and the four components of ATTM. Examples of statements for **TM** component are “I have taken medical history and performed physical examination by myself” for **mastery experience**, “I have observed a person taking medical history and performing physical examination”) for **vicarious experience**, “I have been told by a person that I can take medical history and perform physical examination” for **verbal persuasion**, and “I feel feared, nervous or anxious when taking medical history and performing physical examination” for **physiological and affective states**. The response format for each statement was “Yes,” “No,” or “Unsure.” A score of 1 was rewarded for “yes” and 0 for “No” r “Unsure.” For each component of self-efficacy, the total score of practice of ATTM was averaged to the possible total of 100 points. The total score for each of the four components was standardized to the possible total score of 100 points.

Questionnaire quality assurance

These questionnaires were validated by three experts specifically one in psychology, one in medical social science, and one with expertise in ATTM curriculum structure. Revision was made according to the experts' recommendations. The questionnaire was tested for internal consistency reliability in 50 graduate individuals with characteristics comparable to the participants. The internal consistency reliability was found to be high for self-efficacy and practice difficulty scale (Cronbach's alpha coefficients of 0.942 and 0.976, respectively).

Data analysis

Descriptive statistics including mean with standard deviation (SD), range, and frequency with percentage were used to summarize demographic characteristics and study variables. Correlations of scores of overall self-efficacy, and efficacy of Tmed, Tmas, Tpharm, and Tmid with certain learning/work experience characteristics (i.e., grade point average, duration for applying job, duration of current job, and number of workplace experience) were tested using Pearson's correlation coefficients.

Independent t-test was used to compare overall self-efficacy scores between participants who took courses of Tmed, Tmas, Tpharm, or Tmid and those who did not take these courses in their school years. We also compared scores of Tmed self-efficacy between those who took and those not taking the Tmed courses using independent t-test. Similar comparisons were conducted for Tmas, Tpharm, and Tmid.

Independent t-test was also used to compare overall self-efficacy score between participants who mainly practiced each of the Tmed, Tmas, Tpharm, or Tmid and those not practicing these ATTMs. We also compared scores of Tmed self-efficacy between those who mainly practiced Tmed and those not practicing Tmed. Similar comparisons were conducted for Tmas, Tpharm, and Tmid. Statistical significance was set at a type I error of 5%. All statistical analyses were conducted using the software program SPSS version 20.

Results

Among the 560 ATTM practitioners who graduated with a B.ATM. degree from various institutions licensed by the Thai Traditional Medical Council, most participants were female (74.46%) (Table 1). They had an average age of 26.52 ± 4.2 years old. In terms of occupation, the majority (88.21%) were employed in fields related to ATTM, primarily practicing in Thai Medicine (TM) (82.39%) and Thai Massage (Tmas) (89.68%), while 52.63% engaged in all areas of ATTM practice. Participants had a relatively high academic performance, with a mean cumulative GPA of 3.21 ± 0.33, and 77.48% with a GPA above 3.00 (Table 1).

Table 1 Demographic data and characteristics of participants (N = 560).

Characteristics	N	%
Gender		
Female	417	74.46
Male	141	25.18
n/a	2	0.36
Age (years)		
22 - 24	276	49.29
25 - 39	272	48.57
> 40 years	12	2.14
mean (S.D.) = 26.52 (4.2), min = 22, max = 51.		
Occupations		
Government	150	26.79
Private company	311	55.53
Business	77	13.75
Freelance/students	22	3.93
Occupation related to ATTM		
Yes	494	88.21
No	9	1.61
n/a	57	10.18
Fields of current clinical practice		
Thai traditional medicine (Tmed)	407	82.39
Thai traditional massage (Tmas)	443	89.68
Thai traditional pharmacy (Tpharm)	392	79.35
Thai traditional midwifery (Tmid)	291	58.91
Practice in all fields	260	52.63
Grade point average (n = 555)		
< 2.50	12	2.16
2.51 - 2.99	113	20.36
3.00 - 3.24	172	30.99
3.25 - 3.49	138	24.87
> 3.50	120	21.62
mean (S.D.) = 3.21 (0.33), min = 2.00, max = 3.96.		

Practice difficulty score was found the highest in Tmed practice (4.89 ± 2.17 out of 10 points) followed by Tpharm practice (4.67 ± 2.18 points); while Tmas and Tmid practices had the lowest scores (3.32 and 3.76 points, respectively). Regarding the overall score for all 4 practices

combined (25 activities), the total of 104.22 ± 37.28 out of 250 points indicated that most participants rated practice difficulty as relatively low (Table 2).

Self-efficacy score was highest in Tmas practice (7.53 ± 2.41 points) followed by Tmid (6.87 ± 2.30 points), and Tmed and Tpharm (6.55 points for both). For the four factors of self-efficacy, mastery experience had the highest score in Tmed, Tmas, and Tmid (98.75, 98.04, and 96.43 out of 100 points, respectively) followed by vicarious experience (97.85, 96.96, and 96.07 points, respectively). Vicarious experience was also found to have the highest score in Tpharm (80.71 points). Regarding the overall score for all 4 practices combined (25 activities), the total of 171.91 ± 45.24 out of 250 points indicated that most participants rated self-efficacy as moderately high (Table 2).

Table 2 Mean scores of practice difficulty, self-efficacy and its 4 influencing factors across 4 practices of Thai traditional medicine (N = 560).

Factors of self-efficacy (%)	Thai medicine	Thai massage	Thai pharmacy	Thai midwifery
Practice difficulty (mean ± SD)*	4.89 ± 2.17	3.32 ± 2.01	4.67 ± 2.18	3.76 ± 2.11
Overall score: 104.22 ± 37.28 out of 250 points for all 4 practices combined (25 activities)				
Self-efficacy (mean ± SD)*	6.55 ± 2.10	7.53 ± 2.41	6.55 ± 2.21	6.87 ± 2.30
Overall score: 171.91 ± 45.24 out of 250 points for all 4 practices combined (25 activities)				
Factors influencing self-efficacy (mean)				
Mastery experience§	98.75	98.04	71.07	96.43
Vicarious experience§	97.86	96.96	80.71	96.07
Verbal persuasion§	87.14	84.11	65.18	87.14
Physiological and affective states§	80.71	82.14	79.29	87.32

* Possible total score of 10 points.

§ Possible total score of 100 points.

The **self-efficacy score for each practice activity** of the four practices are as follows (Table 3). For **Tmed** practice, the highest self-efficacy score was found with the activity of providing advice on illness self-care (6.94 out of 10 points) while the other activities were with scores of 6.16 – 6.64 points. For **Tmas** practice, the highest self-efficacy score was with hot compression (7.79 points). The other activities were with the scores of 7.35 – 7.66 points). For **Tpharm** practice, providing advice on herbal drug use had the highest self-efficacy score (7.09 points). Scores of self-efficacy in the other activities were in the range of 6.17 - 7.04 points. Lastly, the Tmid practice activity with highest self-efficacy score was hot herbal streaming and providing advice postpartum care (7.21 points for both). The other activities were with the scores of 6.51 – 6.91 points) (Table 3).

Table 3 Mean score of self-efficacy for each activity of the four practices in Thai traditional medicine (N = 560).

Major in Thai traditional medicine	Mean*	S.D.
Thai medicine		
Medical history taking	6.64	2.13
Physical examination	6.16	1.97
Diagnosis	6.47	1.96
Treatment	6.60	1.99
Patient Referral	6.49	2.21
Providing advice on illness self-care	6.94	2.36
Thai massage		
Medical history taking	7.40	2.29
Physical examination	7.35	2.3
Basic massage performance	7.60	2.43
Treatment massage	7.35	2.33
Hot compression	7.79	2.57
Providing advice on illness and exercises	7.66	2.54
Thai pharmacy		
Crude herbal drug preparation	6.50	2.14
Single herbal drug production	6.38	2.14
Herbal formula production	6.17	2.06
Single herbal drug compounding	6.46	2.15
Herbal formula compounding	6.22	2.09
Dispensing herbal drugs	7.04	2.41
Advice on herbal drug use	7.09	2.48
Thai midwifery		
Hot salt pot compression	6.91	2.21
Herbal scrub and paste	6.73	2.36
Hot herbal streaming	7.21	2.45
Cloth abdominal support	6.64	2.28
Hot charcoal seating	6.51	2.34
Providing advice for postpartum care	7.21	2.51

* Possible total score of 10 points.

Self-efficacy of Tmed was significantly negatively correlated with grade point average (r = -0.102, P-value = 0.02), and positively correlated with number of workplace experience (r = 0.084, P-value = 0.048). Self-efficacy of Tpharm was significantly positively correlated with duration for applying job (r = 0.089, P-value 0.045) (Table 4).

Table 4 Correlations between learning/work experiences with self-efficacy (N = 560).

	r[§] (P-value)				
	Overall self-efficacy	Self-efficacy of Tmed	Self-efficacy of Tmas	Self-efficacy of Tpharm	Self-efficacy of Tmid
Grade point average	0.043 (0.308)	-0.102 (0.02)*	-0.063 (0.137)	-0.072 (0.90)	0.006 (0.895)
Duration for applying job	0.076 (0.087)	0.075 (0.092)	0.035 (0.428)	0.089 (0.045)*	0.039 (0.387)
Duration of current job	-0.047 (0.293)	-0.061 (0.173)	-0.033 (0.453)	-0.041 (0.362)	-0.032 (0.474)
Number of workplace experiences	0.075 (0.080)	0.084 (0.048)*	0.064 (0.131)	0.044 (0.308)	0.062 (0.147)

Note: Tmed = Thai medicine, Tmas = Thai massage, Tpharm = Thai pharmacy, Tmid = Thai midwifery.

§ Pearson's correlation coefficient.

* P-value < 0.05.

Among the 560 participants, those who had not taken any elective courses in the Tmed, Tmas, Tpharm, or Tmid majors during their academic years demonstrated significantly higher overall self-efficacy scores compared to those who had taken such courses (P = 0.04, 0.001, < 0.001, and 0.001, respectively) (Table 5). Regarding discipline-specific self-efficacy, participants who did not take massage courses reported significantly higher Tmas self-efficacy scores than those who did (P = 0.03), and those who did not take midwifery courses had significantly higher Tmid self-efficacy scores compared to their counterparts (P = 0.004) (Table 5).

Regarding the type of ATTM they were practicing at the present, only the participants mainly practicing Tpharm had overall self-efficacy scores higher than those not doing so (P-value = 0.03). For self-efficacy specific to each practice, participants practicing mainly Tmed had Tmed self-efficacy scores higher than those not doing so (P-value < 0.001) (Table 5).

Table 5 Mean self-efficacy scores among participants in different practices of Thai traditional medicine during school years and at the present practice. curriculum and fields of current practice (N = 560).

Self-reported confidence (Yes/No)	N	Mean score of self-efficacy by practice, mean ± SD									
		Overall self-efficacy		Self-efficacy of Tmed		Self-efficacy of Tmas		Self-efficacy of Tpharm		Self-efficacy of Tmid	
Elective courses taken during school years											
Thai medicine practice (Tmed)											
Yes	431	169.84 (47.21)	0.04*	39.09 (11.67)	0.31						
No	120	179.29 (36.74)		40.28 (10.44)							
Thai massage practice (Tmas)											
Yes	432	168.66 (47.07)	0.001[$]			44.63 (14.67)	0.03*				
No	119	183.64 (35.86)				47.22 (10.13)					
Thai pharmacy practice (Tpharm)											
Yes	425	168.90 (48.28)	<					45.44 (14.68)	1.38		
No	126	181.64 (31.29)	0.001[§]					47.25 (11.13)			
Thai midwifery practice (Tmid)											
Yes	352	167.09 (48.21)	0.001[$]							33.06 (11.44)	
No	199	180.39 (38.21)								35.67 (9.29)	0.004[$]
Type of ATTM main practice at present											
Thai medicine practice (Tmed)											
Yes	416	173.94 (45.93)	0.07	40.29 (11.23)	<0.001[§]						
No	136	165.82 (42.58)		36.32 (11.52)							
Thai massage practice (Tmas)											
Yes	459	171.24 (46.29)	0.40			45.54 (14.01)	0.34				
No	91	175.62 (39.33)				44.24 (13.27)					
Thai pharmacy practice (Tpharm)											
Yes	400	174.46 (46.57)	0.03*					45.99 (13.96)	0.71		
No	152	165.33 (40.92)						45.48 (13.96)			
Thai midwifery practice (Tmid)											
Yes	302	172.26 (47.17)	0.86							34.41 (10.85)	0.14
No	250	171.56 (42.85)								32.83 (10.40)	

Note: Tmed = Thai medicine, Tmas = Thai massage, Tpharm = Thai pharmacy, Tmid = Thai midwifery.

* P-value < 0.05, [$] P-value < 0.01, [§] P-value < 0.001.

Discussions and Conclusion

This was the first study to examine self-efficacy levels in the practice of ATTM. The study found that the participants had a moderate level of self-efficacy across all types of practice, i.e., Tmed, Tpharm, Tmas, and Tmid. Most of self-efficacy was attributable to hands-on practice (i.e., mastery experience) and vicarious experience in each of all practices. In Tmas and Tmed practice, most participants could gain self-efficacy levels through hands-on practice, as these fields emphasize skill and expertise through practical experience. In contrast, participants had fewer opportunities to perform hands-on activities in Tpharm and Tmid. It was found that most participants rated their practice as not practically difficult. However, for each individual practice, Tmed followed by Tpharm were rated as more difficult than Tmas and Tmid.

A study on self-efficacy found that the participants exhibited high self-efficacy in their ability to perform ATTM practices, especially in Tmas. This could be attributable to the course structure which involves hands-on practice. Instructors demonstrate various massage techniques on different body parts, allowing students to practice directly.[7] Since many ATTM practitioners mainly work in this field, they develop a strong sense of self-efficacy in Tmas practice. This aligns with Bandura's theory that most human behaviors were learned by observing others, seeing outcomes called "indirect reinforcement," and using cognition to understand, remember, and anticipate that similar actions will lead to rewards or consequences.[5]

Self-efficacy in Thai medicine (Tmed) practice was slightly lower than those of the other three practices. This could be because most ATTM practitioners are employed in the government sector, particularly in sub-district health promotion hospitals where operational limitations restrict the full implementation of TTM practices. Such constraints often prevent ATTM practitioners from fully applying their expertise in Tmed and limit their opportunities to utilize this knowledge. Typically, in these healthcare settings, ATTM practitioners have minimal or no direct practice in Tmed as patients are initially screened and diagnosed by western medical practitioners or nurses before being referred to ATTM practitioners.[8] This lack of opportunities to independently apply their knowledge or perform tasks could contribute to lower self-efficacy in Tmed practice. Without consistent hands-on experience, practitioners may further lack the confidence necessary to perform Tmed practices autonomously.

Self-efficacy in Thai pharmacy (Tpharm) practice among ATTM practitioners was also relatively low, particularly in formulating traditional herbal medicines. This outcome may stem from the broad content of the Tpharm practice in the curriculum including the Four Principles of Thai traditional pharmacy, herbal medicine use, pharmacopeial formulas, formulation structures, and the analysis of herbal medicine formulations. Additionally, the curriculum covers household herbal medicine, high-potential herbal ingredients, ingredient substitutions, liquid vehicles, herbal medicine preparation methods, and the process of compounding herbal medicines.[2,9] ATTM practitioners are required to memorize and identify various herbs used in Thai traditional medicine formulations, a task that can be challenging without adequate hands-on practice. Despite the established course content, the actual practice in healthcare services had not been widely implemented and/or accepted compared with the use of western medicines.

Practical experience in Thai Traditional Pharmacy (Tpharm) may be constrained by the limitations of certain work environments, such as sub-district hospitals, which frequently lack adequate facilities for traditional drug production and have insufficient availability of raw materials (e.g., single herbs). Consequently, practitioners often depend on external sources, which may adversely affect their self-efficacy in compounding herbal formulas. These constraints, therefore, reduce opportunities for practitioners to effectively apply their Tpharm knowledge in clinical settings.

In the field of Thai midwifery practice (Tmid), students studied the anatomy and physiology of pregnant women, prenatal care, complications that might affect pregnancy, the mechanisms of childbirth, and basic principles and procedures for normal deliveries. Additionally, the curriculum covers practical skills such as pregnancy diagnosis, prenatal examinations, and attention for mothers from pregnancy through the postpartum period. Students

were also trained in assisting with normal deliveries, newborn care, and family planning. Furthermore, the course incorporates ATTM approaches to maternal care, both theoretical and practical aspects. These included hot salt pot compression, hot herbal streaming, cloth abdominal support, hot charcoal seating.[10] As observed, the ability both Tmas and Tmid depended on the individual's knowledge, skills, and personal aptitude. The more frequently a person practiced or performed these tasks, the more proficient they became. Consistent practice helps build both competence and self-efficacy in their ability to perform these tasks effectively.

The assessment of the magnitude of practice difficulty in ATTM practice revealed that Tmed practice was more difficult than other practices. This could be because after graduation many practitioners did not have the opportunity to practice these skills due to limitations in their workplaces where hands-on experience in this practice is not readily available. This lack of practice was also consistent with relatively low scores of practice activities of Tmed (Table 3). According to Bandura's theory of self-efficacy, an individual's self-efficacy in their ability to perform a task was influenced by past experiences. If an individual had tried performing a task, their self-efficacy would either increase or decrease based on the outcome. In this case, the practitioners' limited opportunities to practice these skills could lead them to feel less confident in their abilities. This aligns with Bandura's assertion that one's perception of difficulty and self-efficacy in their ability to perform a task is shaped by direct experience and outcomes.[11]

Most practitioners were employed in government agencies or the private sector, often carrying responsibilities beyond ATTM practice. For example, those in provincial public health departments tend to focus on administrative and academic tasks rather than direct clinical work. Additionally, practitioners in sub-district health-promoting and community hospitals work within multidisciplinary teams, which may limit their full engagement in ATTM practice. Similarly, these facilities often lack the resources and authorization needed for ATTM practitioners to perform at full capacity, including limitations on essential herbs required for treatment. This observation aligns with prior studies showing that the professional identity of TTM practitioners is shaped by both student motivation and instructional methods, with professional interactions with TTM instructors enhancing dedication to the field.[12]

The relationship between self-efficacy scores and elective courses taken during school years and the practice of ATTM at present was of interest. Practitioners who stated that they did not take elective courses in Tmed, Tmas, Tpharm, and Tmid practices back in their school years had overall self-efficacy scores that were significantly higher than those who did not in the respective practices. Similarly, self-efficacy scores of each of the Tmed, Tmas, Tpharm, and Tmid practices of those not taking respective elective courses were higher than those who did so. The findings could be perceived as counterintuitive based on self-efficacy theory of Bandura where self-efficacy could be cultivated through direct hands-on experiences (i.e., mastery experiences).[5] The direct experiences of elective courses of each ATTM practice while in school should result in a higher present self-efficacy; unfortunately, the opposite was found in our study. Based on Bandura's self-efficacy, aside from vicarious experiences, self-efficacy at the present among these practitioners could be developed also through vicarious experience, verbal persuasion, and physiological and affective states.[5] Since these practitioners did not take respective elective courses, after graduation they might have tried to master the practice skills without formal education and ultimately developed their self-efficacy through vicarious experience, verbal persuasion, and physiological and affective states.

Conversely, the lower self-efficacy observed among practitioners who had taken elective courses may be attributable to several factors. These individuals may have acquired deeper insights, additional knowledge, and more hands-on experience during their studies, which could have heightened their awareness of the complexities involved in clinical practice. This increased awareness may have led to greater self-reflection and a more critical assessment of their own abilities. The depth and detail gained through elective coursework in specific ATTM disciplines might have made these practitioners more cautious or hesitant in

applying their skills, thereby reducing their self-efficacy compared to those who had not taken such courses.

The relatively low self-efficacy among practitioners who completed elective courses may also be influenced by potential bias. As elective courses typically require practical training, disparities in institutional readiness to deliver these components could affect the quality of the learning experience. Consequently, the availability and implementation of elective courses may vary considerably across universities, potentially impacting students' confidence and perceived competence. This variation led to a lack of consistency in the elective course offerings within the curriculum which could affect the clarity of information regarding elective choices across programs. Furthermore, even after studying elective courses of certain ATTM practices, graduates might not apply the knowledge in their actual work. For example, students who took elective courses in Tmas learned about more complex conditions, such as patellar subluxation and spinal curvature. However, since they rarely encountered such cases in practice, this might reduce their confidence in treating these conditions. Similarly, in Tpharm elective courses, students gained advanced knowledge in herbal extraction and formulation techniques, but they rarely used these skills in their work. This kind of knowledge is more applicable in further studies at the master's or doctoral level. Practitioners who took these elective courses in school years could have lower self-efficacy in hands-on Tpharm practice during the initial phase of their careers. Similarly, in the field of Tmid, gaining additional knowledge without practice led to a lack of confidence in performance. Currently, most people choose to have prenatal care and give birth with western medical practitioners; hence, the opportunity for ATTM practitioners to apply their midwifery knowledge is limited. This lack of practical experience could contribute to lower self-efficacy in Tmid practice among those who took elective Tmid courses.

The strengths and limitations of the present study are outlined as follows. This study included a diverse sample of 560 ATTM practitioners with varying ages, educational backgrounds, and work experience, providing a robust sample size for assessing overall self-efficacy in clinical practice. As the findings are based on a specific group of ATTM practitioners, their applicability is primarily limited to this population. The results may not be generalizable to individuals outside the ATTM profession or those currently in postgraduate education. Therefore, future research should be extended to these groups. Nevertheless, the findings offer valuable insights for the development of teaching strategies aimed at enhancing ATTM students' self-efficacy across clinical disciplines, particularly through hands-on practice and observational learning from peers, senior students, or instructors.

In conclusion, self-efficacy in ATTM clinical practice was primarily derived from hands-on experience and the observation of role models, corresponding to mastery and vicarious experiences, respectively. Among the major disciplines, ATTM practitioners reported the highest self-efficacy in Thai massage practice, while Thai traditional medicine was perceived as the most challenging. In particular, physical examination and diagnosis were identified as the most difficult tasks. These findings provide preliminary data to support curriculum development in universities offering ATTM programs, with the goal of enhancing students' self-efficacy upon graduation and informing future research.

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