การประเมินสมรรถนะตนเองของเภสัชกรโรงพยาบาลประเทศไทยโดยใช้เกณฑ์มาตรฐานผู้ประกอบวิชาชีพเภสัชกรรม ด้านการบริบาลเภสัชกรรม

องอาจ มณีใหม่ ภ.บ. (บริบาลเภสัชกรรม), ส.บ.*, วัชราภรณ์ ชุมพลศรี ภ.บ. (บริบาลเภสัชกรรม)*
เขมณัฏฐ์ รัตน์วรวงศ์ ภ.บ. (บริบาลเภสัชกรรม)*, พิชญตม์ รัตนธัญพันธ์ ภ.บ. (บริบาลเภสัชกรรม)**
กัญญ์วรา อบอุ่น พ.ย.บ.***

บทคัดย่อ

ความเป็นมา : สภาเภสัชกรรมได้ประกาศเกณฑ์มาตรฐานผู้ประกอบวิชาชีพเภสัชกรรม ด้านการบริบาลเภสัชกรรม ในปี พ.ศ.2554 แต่ยังไม่มีการศึกษาเกี่ยวกับการประเมินสมรรถนะของเภสัชกรในประเทศไทยโดยใช้เกณฑ์ดังกล่าว

วัตถุประสงค์ : เพื่อประเมินสมรรถนะของเภสัชกรโรงพยาบาลโดยใช้เกณฑ์มาตรฐานผู้ประกอบวิชาชีพเภสัชกรรม ด้านการบริบาลเภสัชกรรม

วิธีการศึกษา : การศึกษานี้เป็นการศึกษาเชิงสำรวจแบบภาคตัดขวางในกลุ่มตัวอย่างที่เป็นเภสัชกรโรงพยาบาลจำนวน 1,204 คน สุ่มตัวอย่างโดยใช้การสุ่มแบบหลายขั้นตอน เก็บข้อมูลโดยใช้แบบสอบถามทางไปรษณีย์ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา การแจกแจงความถี่ การทดสอบที และ one-way analysis of variance (ANOVA) วิเคราะห์หาปัจจัยที่สัมพันธ์กับสมรถนะของเภสัชกรโดยใช้ multiple linear regression

ผลการศึกษา : แบบสอบถามที่สมบูรณ์และนำมาวิเคราะห์ข้อมูลมีจำนวน 476 ฉบับ (อัตราตอบกลับ ร้อยละ 39.5) ผู้ตอบแบบสอบถามส่วนมากเป็นเพศหญิง (ร้อยละ 80.9) สำเร็จการศึกษาในระดับปริญญาตรี (ร้อยละ 77.3) ผลประเมินสมรรถนะของตนเองในภาพรวมของเภสัชกรโรงพยาบาลอยู่ในระดับปานกลาง (72.18 ± 8.94) โดยผลการประเมินสมรรถนะที่มีคะแนนสูงสุดคือด้านจรรยาบรรณและทัศนคติต่อวิชาชีพ (85.60 ± 9.39) และผลการประเมินสมรรถนะที่มีคะแนนน้อยที่สุดคือด้านการจัดซื้อและบริหารคลังเวชภัณฑ์ (62.31 ± 16.02) ปัจจัยที่มีผลเชิงบวกต่อสมรรถนะของเภสัชกรโรงพยาบาล คือ การปฏิบัติงานในหอผู้ป่วยใน และการให้บริการเภสัชสนเทศ ขณะที่ปัจจัยที่มีผลเชิงลบ คือ การปฏิบัติงานในหน่วยจัดซื้อและบริหารเวชภัณฑ์และการให้บริการในแผนกผู้ป่วยนอก

สรุปและข้อเสนอแนะ : ในภาพรวม เภสัชกรโรงพยาบาลของประเทศไทยประเมินสมรรถนะทางวิชาชีพในระดับปานกลาง โดยสมรรถนะที่ต้องได้รับการพัฒนา คือ สมรรถนะด้านการจัดซื้อและบริหารคลังเวชภัณฑ์ และด้านการปฏิบัติตามกฎหมาย การศึกษานี้เป็นการศึกษาแรกที่ประเมินสมรรถนะของเภสัชกรโรงพยาบาล อาจเป็นจุดเริ่มต้นของการศึกษาอื่นต่อไป

คำสำคัญ : สมรรถนะ เภสัชกรโรงพยาบาล บริบาลเภสัชกรรม

* สาขาวิชาบริบาลเภสัชกรรม คณะเภสัชศาสตร์ มหาวิทยาลัยพะเยา

** โรงพยาบาลมหาวิทยาลัยพะเยา คณะแพทยศาสตร์ มหาวิทยาลัยพะเยา

ติดต่อเกี่ยวกับบทความ : องอาจ มณีใหม่ E-mail : ongart.ma@up.ac.th

วันที่รับเรื่อง : 5 พฤษภาคม 2564 วันที่ส่งแก้ไข : 17 มิถุนายน 2564 วันที่ตีพิมพ์ : 31 สิงหาคม 2564

SELF - ASSESSMENT OF THAI HOSPITAL PHARMACISTS' COMPETENCIES USING THE STANDARD CRITERIA FOR PHARMACY PRACTITIONERS IN PHARMACEUTICAL CARE

Ong-art Maneemai Pharm.D.; B.P.H.*, Watcharabhorn Chumpolsri Pharm.D.*,
Khemanat Ratworawong Pharm.D.*, Pitchayut Rattanatanyapat Pharm.D.**,
Kunwara Ob-un B.N.S.***

ABSTRACT

BACKGROUND : The pharmacy council of Thailand established an update of the standard criteria for pharmacist practitioners (SCPP) in 2011. However, there was no previous research about the pharmacist's professional competency evaluation in Thailand using the SCPP.

OBJECTIVE : To evaluate the self-assessed professional competencies of hospital pharmacists using the SCPP

METHODS : A cross-sectional survey conducted among hospital pharmacists in which 1,204 surveys were distributed, using the multi-stage random sampling method. Demographic characteristics of respondents and competency scores were analyzed using descriptive statistical analysis. The results were subjected to frequency analysis, independent t-test, and one-way analysis of variance (ANOVA) as appropriate. A multiple linear regression was used to identify the factors influencing the competency

RESULTS : : The 476 valid responses were included in the data analysis (response rate of 39.5%). Most respondents were female (80.9%) with a bachelor's degree in pharmacy (77.3%). The self – assessment showed that the mean of overall competencies of hospital pharmacists was at a moderate level (72.18 ± 8.94). The result demonstrated that pharmacists evaluated themselves to have the best competency in professional ethics and attitude domain, scored at a high level (85.60 ± 9.39) while having the lowest competency in the areas of medical supplies procurement and management service, scored at a low level (62.31 ± 16.02). Positive factors influenced to the hospital competencies were working in the inpatient ward and drug information services. Negative factors were working in medical supplies procurement and storage management and outpatient department.

CONCLUSIONS AND DISCUSSIONS : Overall, the Thai hospital pharmacists had evaluated their pharmacist's professional competencies at a moderate level. Competencies were needed to be developed especially in medical supplies procurement and management service and pharmacy and law practice areas. This study provided the first data on hospital pharmacists' competency in Thailand and served as a starting point for future studies and actions.

KEYWORDS : competency, hospital pharmacist, pharmaceutical care

*Department of Pharmaceutical care, School of Pharmaceutical Sciences, University of Phayao
**University of Phayao Hospital, School of Medicine, University of Phayao
***School of Nursing, University of Phayao

Corresponding Author : Ong-art Maneemai E-mail : ongart.ma@up.ac.th

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BACKGROUND

Within recent years, there has been a drive towards a competency model of the health care profession[1]. Competencies represent a dynamic framework of knowledge, skills, and abilities to carry out tasks and reflect on improving the quality of life and the patient's health[2-3]. The pharmacy practice profession has evolved from a traditional role of dispensing and compounding to a more patient-focused approach[3-4]. Hospital pharmacists are essential members of the multidisciplinary team who promote rational and cost-effective use of medications and improve patient outcomes[4-5]. To maximize patient outcomes, it is necessary to have an adequate supply of appropriately educated and clinically skilled pharmacists. Nonetheless, there is a lack of concerns regarding pharmacists' professional competencies caused it to be the last subject considered for conducting research in the professional area. Even now, the professional organizations are still working to develop adequate tools for assessing and developing the competencies of pharmacists[4-9].

As the professional roles of pharmacists are expanding along with the changing of the health system, professional competencies for pharmacists should be reviewed and revised. The Pharmacy Council of Thailand established an update standard criterion for pharmacy practitioners (SCPP) in 2011. The aim of the SCPP was to enable pharmacists to work at an advanced level of pharmacy practice to gain formal recognition and to inspire other pharmacists to advance their career. The SCPP was consisted of various dimensions of pharmacy practice such as laws and ethics, medication counselling, product quality control, and pharmaceutical care[10]. SCPP was accepted as the professional competency of hospital pharmacists by The Association of Hospital Pharmacy (Thailand).

Currently, little is known about whether the current hospital pharmacist's competency meets the current needs of the Thai health care system, according to the limited competency studies conducted among hospital pharmacists in Thailand. The previous study was done on outpatient pharmacy services[9]. There is no previous research about the competency evaluation in Thailand using the SCPP. Therefore, the purposes of this study were to assess the level of competency using the SCPP and explore the factors affecting the hospital pharmacist competencies in Thailand. The results of the study provided data on hospital pharmacists' competency and served as a starting point for future studies and actions.

METHODS

A descriptive, cross-sectional study was done to evaluate the self-assessed professional competencies of pharmacists using the SCPP[10]. The study protocol was approved by the University of Phayao human ethics committee. The research involved minimal risk of the respondents (data were anonymized) therefore written consent was not obtained.

Participants and Sampling

The populations were Thai hospital pharmacists who work in government hospitals under the Ministry of Public Health. The sample size required a minimum sample of 385 as calculated. However, the survey response rate may be lower when using a mail questionnaire. Therefore, the minimum number of needed responses was added triple to ensure that the study has an adequate sample size. Finally, 1204 questionnaires were distributed across twenty-four provinces of Thailand. Multi-stage random sampling was used to select the participants. The procedure of sampling was described as follows: (1) Simple random sampling was used to select 2 provinces from 12 health service area of the Ministry of Public Health; (2) The hospitals in selected areas were categorized by the size of services into 3 groups – small (number of admission beds < 100 beds); medium (101 – 499 beds) and large (> 500 beds). The hospitals were selected by simple random sampling in 3, 2, 1 hospital in the small, medium, and large group, respectively. The questionnaire was distributed to small, medium, and large hospitals in the amount of 3, 5, 15 copies, respectively.

Instrument Validation

The questionnaire was developed based on the SCPP statement established by The Pharmacy Council of Thailand[10]. Content validity of the first draft questionnaire was assessed by content validity index (CVI) method. The test was done by 3 Thai experts (two from hospital pharmacists and one from the Faculty of Pharmaceutical Sciences in Thailand). Comments and suggestions were wording adjustments to build a clear and understandable final questionnaire. A pilot study was undertaken, using a convenience sampling of 50 hospital pharmacists. Cronbach's alpha reliability was 0.981. The questionnaire took approximately 20 minutes to complete. Final draft of questionnaire consisted of 2 parts: (i) demographic data (e.g., gender, age, educations, work experience, etc.) and (ii) hospital competency assessment (70 items). The second part was 5-Likert scale competency questions. The rating scores ranged from 1 (very low) to 5 (very high). There were ten competency domains. The full score of each dimension was calculated to 100.

The competency score was divided into 3 levels; low (< 60); moderate (60 – 80) and high (> 80).

Data collection

The questionnaires were sent to the director of the pharmacy department and then passed to the pharmacists by convenience sampling. A cover letter, questionnaire, and self – addressed stamped envelope for return were mailed since January 30, 2015. One month after sending the first questionnaire, a follow-up questionnaire with a new cover letter and stamped return envelope were sent to non – respondents. The questionnaire had a close date on March 30, 2015.

Data analysis

Data were analyzed using the statistical program. A p-value < 0.05 was used for all analyses to determine statistical significance. Descriptive statistics were used to present the participants' demographic data. The One-way ANOVA test or independent t-test were used to determine the difference in mean competency scores across the groups. If there was any significant difference among groups, a post hoc Scheffe test would be conducted to determine which pairs of practice settings were different. A multiple linear regression was used to identify the factors influencing the competency.

RESULTS

Demographic data

A total of 1,204 questionnaires were distributed to hospital pharmacists. Since the initial and follow-up mailing had been sent, 547 questionnaires (45.4%) were returned. The 476 completed questionnaires were analyzed. The demographic data of the 476 respondents were shown in Table 1. The average age of the respondents was 34.75 ± 6.8 years old and eighty – one percent were female. The greatest number of respondents had obtained a Bachelor of Pharmacy degree. About one-fourth of respondents had obtained additional education in a master's degree. The mean year of hospital pharmacy experience was 10.4±7.2 years. Fifty – two percent of respondents had worked in the hospital for less than 10 years. The mean years of experience at the hospital were 10.4±7.2. Most pharmacists had experience working in the outpatient department, inpatient department, and the pharmaceutical care unit.

Table 1 Demographic information of respondents (n=476)

Demographic characteristics	No.	Percentage (%)
Gender		
Male	91	19.1
Female	385	80.9
Age (Mean = 34.8, S.D. = 6.8)		
24-30	163	34.2
31-40	217	45.6
41-50	89	18.7
51-60	7	1.5
Educations		
Bachelor's degree	368	77.3
Master's degree	105	22.1
Doctoral degree	3	0.6
Years in hospital work (Mean = 10.4, S.D. = 7.2)		
0-10	253	53.2
11-20	182	38.2
21-30	39	8.2
31-40	2	0.4
Size of the hospital (Number of admission beds)		
$\leq$ 100	188	39.5
101-499	138	29
$\geq$ 500	150	31.5
Workplace (Region of Thailand)		
North	55	11.6
Central	77	16.2
West	47	9.9
East	49	10.3
Northeast	159	33.4
South	89	18.7

Hospital Competency

I. Overall competency score

The respondents were asked to complete the pharmacist professional competencies self-assessment in ten domains. The mean scores on the competency were shown in table 2. The results showed that the mean score for all ten domains was 77.2 ± 8.9. The result demonstrated that pharmacists evaluated themselves to have the best competency in morality and attitude domain, scored at a high level (85.60 ± 9.39) while having the lowest competency in the areas of medical supplies procurement and management service, scored at a low level (62.31 ± 16.02).

Table 2 Mean scores of hospital pharmacist's competency

Competency Domains	No. items	Competencies score	
		Mean ± SD	Level*
Number of complete surveys		n = 476	
1. Professional ethics and attitude	4	85.6 ± 9.4	High
2. Provide patient education and drug counseling	3	76.7 ± 11.5	Moderate
3. Pharmacy practice with additional health science skills	6	76.0 ± 9.7	Moderate
4. Provide pharmaceutical care	22	74.8 ± 10.5	Moderate
5. Hospital accreditation and drug system	7	71.9 ± 12.3	Moderate
6. Retrieve and provide health product information	8	71.7 ± 11.5	Moderate
7. Primary health care and drug use in the community	3	70.5 ± 12.8	Moderate
8. Produce and assure the quality of pharmaceutical products	7	66.5 ± 12.0	Moderate
9. Pharmacy practice under laws, professional standards	7	62.6 ± 13.7	Moderate
10. Medical supplies procurement and store management	3	62.3 ± 16.0	Moderate
Overall		72.2 ± 8.9	Moderate

*The competency was divided into 3 levels; low (< 60); moderate (60 – 80) and high (> 80).

Differences in the mean competency scores between the pharmacists grouped by gender, age, education, length of hospital work experiences, hospital size, and location were not statistically significant (Table 3). Both male and female pharmacists' competencies were not different (p=0.16). The mean competency scores were 72.4 ± 9.3 and 72.1 ±8.9 in males and females, respectively. Similarly, differences in all the age groups were not statistically significant in mean competency scores (p=0.73).

The highest score was 73.9 ± 10.6, in the 51-to-60 age group. The best competency score was shown in the pharmacists with a master's degree (73.7 ± 8.6). While the lowest competency was in the doctoral group (64.4 ±8.9).

In the length of hospital work experiences, there was no difference in mean competency scores among the different lengths of experience groups (less than 10, from 10 to 20, from 20 to 30, and from 31 to 40 years). The highest competency score was observed in the pharmacists who had the length of experience in hospital less than 10 years (72.4 ± 8.8) while the lowest score was observed in the group with the length of experience in hospital from 31 to 40 years (64.4 ± 14.8).

Moreover, the results showed that there were no significant differences in competency scores among the pharmacists worked in three size hospital (p=0.90). The highest mean score of competencies was observed in a group of pharmacists who worked in the large hospital group (72.5± 9.4), followed by medium hospital group (72.1±7.8) and small hospital group (72.0± 9.4). Similarly, the mean competency scores among the pharmacists in different regions were not different (p=0.25). The mean score was highest in the northern pharmacists' group (74.1± 9.0) and the lowest in western pharmacists' group (70.0 ± 9.3).

Table 3 Subgroup analysis of competency

Subgroups	Competencies score		P-value[b]
	Mean ± SD	Level[a]	
Gender			
Male	72.4 ± 9.3	Moderate	0.160[c]
Female	72.1 ± 8.9	Moderate	
Age			
24-30	72.0 ± 8.6	Moderate	0.730
31-40	72.6 ± 9.6	Moderate	
41-50	71.4 ± 7.9	Moderate	
51-60	73.9 ± 10.6	Moderate	

Table 3 (Continued)

Subgroups	Competencies score		P-value[b]
	Mean ± SD	Level[a]	
Highest education			
Bachelor's degree	71.8 ± 9.0	Moderate	0.052
Master's degree	73.7 ± 8.6	Moderate	
Doctoral degree	64.4 ± 8.9	Moderate	
Length of hospital work experience			
0-10	72.4 ± 8.8	Moderate	0.660
11-20	72.0 ± 9.0	Moderate	
21-30	71.9 ± 9.2	Moderate	
31-40	64.4 ± 14.8	Moderate	
Size of the hospital (No. of admission beds)			
Large (≥ 500)	72.5 ± 9.4	Moderate	0.900
Medium (101-499)	72.1 ± 7.8	Moderate	
Small (≤ 100)	72.0 ± 9.4	Moderate	
Workplace (Region of Thailand)			
North	74.1 ± 9.0	Moderate	0.250
Central	71.6 ± 9.0	Moderate	
West	70.0 ± 9.3	Moderate	
East	72.8 ± 8.6	Moderate	
Northeast	72.6 ± 9.1	Moderate	
South	71.7 ± 8.5	Moderate	

[a]The competency was divided into 3 levels; low (< 60); moderate (60 – 80) and high (> 80);
[b]ANOVA; [c]Independent t-test

II. The factors influenced the competency

The factors influenced the hospital pharmacist's competency score were analyzed, using a multiple linear regression test. General information of the respondents such as gender, age, education level, hospital size, number of experiences in hospital work, and location of the hospital was not affecting the competencies. The results demonstrated that positive factors were working in the inpatient ward and drug information service.

In the other hand, the negative factors were working in medical supplies procurement and management service and out-patient pharmacy department. The multiple linear regression test results were presented in table 4.

Table 4 The factors affecting the hospital pharmacist's competencies

Factors	B	SE	p-value
1. Providing the pharmaceutical care in the in-patient ward	8.35	3.58	0.020
2. Working in drug information service	11.99	4.19	0.004
3. Working in medical supplies procurement and store management	-15.24	5.46	0.005
4. Providing the service on out-patient pharmacy department	-7.60	3.25	0.020

Adjust R^2 = 0.51; F = 2.601; Sig F = 0.001

DISCUSSIONS

The self-assessment of Thai hospital pharmacists' competencies by using the SCPP of The Pharmacy Council of Thailand has not been investigated previously. The primary objective of this study was to assess the level of competency among the hospital pharmacists. The results provided a foundation for the development of pharmacy education. The pharmacist's professional competencies self-assessment showed a moderate level of overall competency. This was different from previous studies where competency scores were high[11-12]. That implied the respondents were responsible for their jobs.

Competency in professional ethics and attitude domain was at the high score level. It also showed that the pharmacist practitioner concerned about the value of ethical issues. In accordance with the current Thai practice environment, an honest pharmacist is expected by society[13]. The second and third highest competencies were providing the patient education and drug counseling dimension and pharmacy practice with additional health science skills dimension, respectively. Consistent with the former study found that communications and additional health promotion skills were highly valued and expectations[13]. These due to that the hospital pharmacists must regularly provide the medical information, thus, both dimensions score were high.

However, there were three competencies in which the mean scores were less than the other competencies. These competencies included medical supplies procurement and storage management, pharmacy practice under laws and professional standards, and production

and the quality assurance of pharmaceutical products. The reasonable explanation of those low competencies was the transformation of the pharmacist role[14]. Hospital pharmacists must participate more in clinical roles such as drug-use decision making, selection of drug products, determination of the dose and dosage schedule, monitoring of drug use, and provision of drug information[14-15]. Consequently, product-oriented skills were worsening. Although Thai hospital pharmacists are obligated to understand and follow the drug acts and other related regulations, they do not have the authority to work actively in the law field unlike the provincial public health officer. These may explain why the competencies score in pharmacy practice under the law dimension was lower than others.

The recent results showed that the differences in the mean competency scores between the pharmacists grouped by gender, age, education, experiences in hospital work, hospital size, and location was not statistically significant. The SCPP is a basic professional competency; it is possible for all licensed pharmacists to perform. Similarly, the previous competency assessment studies among registered nurses[16-20] demonstrated that age, education level, and experiences of nurses were not related to professional competencies. Currently, pharmacy education aims to produce high-quality professional pharmacists by increasing internship training. The Pharmacy Council of Thailand also made the Doctor of Pharmacy (6-year program) compulsory for pharmacy licensure so the bachelor's degree in pharmacy (5-year program) no longer has in Thailand[21]. Furthermore, the continuing pharmaceutical education policy was established. This is an opportunity for pharmacists to develop themselves[22]. Therefore, the pharmacists who had a shorter length of hospital work experience were not significantly different in competencies from those who had a longer length of hospital work experience.

The second objective was to examine the factors which affected to the competencies. The results of this current study were similar to the previous study[23]. The results indicated that demographic data (e.g., gender, age, marriage status, education level, salary and experiences in hospital work) were not affecting the competencies. The factors related to hospital competency were: (1) providing the pharmaceutical care in the inpatient ward; (2) working in drug information services; (3) working in medical supplies procurement and management service; and (4) providing the services to the outpatient pharmacy department.

Our findings suggested that providing the pharmaceutical care in the inpatient ward and working in the drug information service

were positive factors for hospital competency. According to the questionnaire, mostly of competency assessment questions were focused on the pharmaceutical care competency, so the two pharmacy services above were influenced to the hospital competency because they were incorporated into patient care processes thus the pharmacists usually updated and practiced themselves. On the other hand, the pharmacists in medical supplies procurement and management unit did not serve the patients directly. Basically, they often used the management and administrative skills, so this can be reduced the pharmacists' competency. The interesting issue, the providing service to the out-patient pharmacy department can be reduced the competency. The traditional service in the out-patient pharmacy department was medication dispensing following the prescriptions. The ambulatory care clinics were limited. For this reason, the hospital competency of pharmacists has reduced.

Limitations

A primary limitation of this study is that participants were not recruited randomly, thereby limiting the representation of participants to pharmacists who volunteered to participate in the study. Reporting bias is a potential issue because participants' responses are based on self-assessment. Therefore, the results might be overestimated as a result of potential social desirability bias. Finally, this study was published later than they should have been. The pharmacy education, competency promoting programs and hospital services were reformed. The further study on hospital competency is required to confirm.

CONCLUSIONS

The paper represents the first implementation of the SCPP in the form of a self-assessment survey. That allows Thai hospital pharmacists to assess their level of professional competencies. According to the result, the lowest mean scores were observed in the medical supplies procurement and the management service domain while the highest mean scores were observed in the professional ethics and attitude domain. There was no statistical difference between the subgroup analyses.

We recommended that the key stakeholders in pharmacy education and regulation should provide educational intervention to ensure all pharmacists meet the SCPP and have the adequate competencies, especially in medical supplies procurement and management service and pharmacy law and practice areas. This will also assist the pharmacist to deliver competent care to diverse patients.

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