

CHAPTER IV

RESULTS



To achieve the objective of this study, the data were analyzed and presented in this chapter by four parts in the following;

Part I Response rate and demographic characteristics.

Part II Descriptive result of study variables

- Pharmaceutical care practice;

Extent of pharmaceutical care -based pharmacy practice,
and degree of pharmaceutical care-based pharmacy practice
among community pharmacists in Thai context.

- Factors influencing pharmaceutical care practice;

Social cognitive variable; attitude, self-efficacy,
knowledge, empathy, professionalisms (ASKEP), and
intention,

External factors; barriers variable.

Part III Association among study variables

- Pharmacists' attitude, self-efficacy, knowledge, empathy,

professionalisms, predisposing factors and external

variables with intention, and pharmaceutical care activities.

- Correlation among study variables

Part IV Factors influencing the intention of community pharmacists to
provide pharmaceutical care- based pharmacy practice.

Factors influencing community pharmacists to provide their current pharmaceutical care- based pharmacy practice.

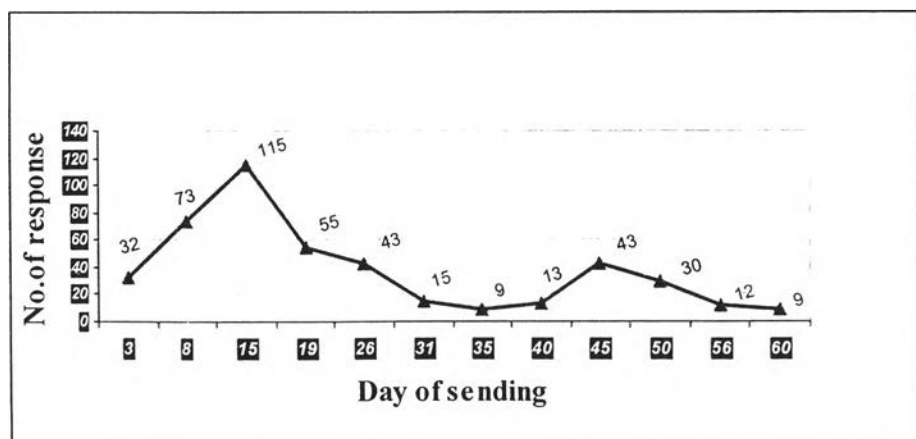
Part I: Response rate and demographic characteristics

Response rate

The survey instruments were sent to 1070 community pharmacists nationwide on May 24, 2004. After the follow up by post-cards 10 days later, and by telephone for the non-response four week later, 479 surveys were returned. Of the 479, 30 were returned because the surveys were unable to reach subjects whether because pharmacies changed their addresses, pharmacies were out of business, or pharmacists did not work in those pharmacies.

Of the remaining 449 responses, 10 were unusable due to incomplete survey responses. Therefore, 439 usable surveys were obtained. The usable response rate was calculated from 1030 responses. The usable response rate was 42.62 percent. Number of respondents by the time after sending the survey instruments was illustrated in Figure 4.1.

Figure 4.1: Number of respondents by the time after sending the survey instruments.



Demographic Characteristics

The demographic characteristics of the respondents were presented in Table 4.1.

Table 4.1: Demographic Characteristics

| Demographics | Number of the respondent (%) |
|----------------------------|-------------------------------------|
| Age (year) | |
| ≤30 | 35 (8.0 %) |
| 31 -39 | 108 (24.7%) |
| 40-49 | 165 (37.6%) |
| 50-59 | 97 (22.1%) |
| ≥ 60 | 34 (7.7%) |
| Gender | |
| Male | 239 (54.4%) |
| Female | 200 (45.6%) |
| Education | |
| Bachelor degree | 342 (77.9%) |
| Master degree | 93 (21.2%) |
| PhD. degree | 4 (0.9%) |
| Location | |
| Residential area | 55 (12.5%) |
| In the community | 365 (83.1%) |
| In the department store | 19 (4.3%) |
| Type of pharmacy | |
| Independent drug store | 426 (97.0%) |
| Chain drug store | 10 (2.3%) |
| Franchise store | 3 (0.7%) |
| Number of customers | |
| ≤ 50/day | 115 (26.2 %) |
| 51 - 100/day | 198 (45.1 %) |
| 101 - 150/day | 71 (16.2 %) |
| 151 - 200/day | 30 (6.8 %) |
| >200/day | 25 (5.7%) |

Table 4.1: Demographic Characteristics (Continued)

| Demographics | Number of respondent (%) |
|---|---------------------------------|
| Number of pharmacists, besides respondents | |
| None | 349 (79.5%) |
| 1 | 75 (17.1%) |
| 2 | 6 (1.4%) |
| 3-5 | 9 (2.1%) |
| Number of assistants | |
| None | 158 (36.0%) |
| 1 | 164 (37.3%) |
| 2 | 79 (18.0%) |
| 3 | 17 (3.9%) |
| 4- 6 | 17 (3.9%) |
| 7 – 40 | 4 (0.9%) |
| Number of prescriptions /month | |
| None | 214 (48.7%) |
| 1 | 74 (16.9%) |
| 2 | 30 (6.8%) |
| 3 | 21 (4.8%) |
| 4 – 9 | 37 (8.4%) |
| 10 -15 | 35 (8.0%) |
| 16-300 | 28 (6.4%) |
| Hours of practice /day | |
| 1-6 hrs | 120 (27.3%) |
| 7-12 hrs | 274 (62.4%) |
| 13-15 hrs | 45 (10.3%) |
| Owner status | |
| Yes | 372 (84.7%) |
| No | 67 (15.3%) |
| Participation in professional's organization conferences | |
| Yes | 341 (77.7%) |
| No | 98 (22.3%) |
| Joining in professional's organization projects | |
| Yes | 131 (29.8%) |
| No | 308 (70.2%) |
| Total number | 439 (100%) |

The numbers of male respondents were more than female respondents. Most of the respondents (77.9%) had bachelor degree in pharmacy. Almost all of respondents (97%) were working in independent pharmacies. About 63 % of the respondents were 31- 49 years old (average age was 44.46). The average of practicing hours/day of respondents was 8.81 hrs, and 62.4 % of them worked 7-12 hours/day. Forty-nine percents of the respondents did not receive any prescription during one month, however twenty-four percents of them received one or two prescriptions in that period.

Regarding the respondents' perception to classify the patients' number who received health care through their drug stores setting by four dimensions of pharmacy practice including self medication, primary care, refill medication, and medication with prescription, the data revealed that the percentage of patients in the different four aspects were 29.36, 51, 15.19 and 4.28 percentages (see Table 4.2).

Table 4.2: Percentage of service provided by the respondents based on the aspects of pharmacy practice among Thai community pharmacists.

| Aspects | Self-medication | Primary care | Refill-medication | Medication with Prescription |
|-------------------------|------------------------|---------------------|--------------------------|-------------------------------------|
| Percentage(100%) | 29.36% | 51 % | 15.19% | 4.28% |

Distribution of demographics characteristics

Based on the result in table 4.2, 64 % of these pharmacies had pharmacist assistants. Of these 55.3 % had one or two assistants and 8.7% had three pharmacists or more.

Data regarding the relationships among these characteristics were explored. It could be observed that either the number of pharmacists or the number of assistants was shown to be associated with volume of customer (see Table 4.3, 4.4). It was found that the proportion of pharmacies having more than one pharmacist seemed to be greater when pharmacies having more number of customer per day (Table 4.3). Likewise, the proportion of pharmacies having one, two, three or more than three assistants seems to be greater when pharmacies having more number of customer per day (Table 4.4).

Table 4.3: Number of respondent classified by number of pharmacist in pharmacy of different number of customers.

| Pharmacy having pharmacist | Number of customer per day | | | | Total (%) |
|----------------------------|----------------------------------|-----------|----------|----------|-----------|
| | < 50 | 51-100 | 101-150 | > 150 | |
| | Number of respondents (%) | | | | |
| One | 104 (29.8) | 164(47.0) | 51(14.6) | 30(8.6) | 349(79.5) |
| Two or more | 11(12.2) | 34(37.8) | 20(22.2) | 25(27.8) | 90(20.5) |
| Total (%) | 115(26.2) | 198(45.1) | 71(16.2) | 55(12.5) | 439(100) |

Table 4.4: Number of respondent classified by number of assistant in pharmacy of different number of customers.

| Pharmacy having assistant | Number of customer per day | | | | Total (%) |
|---------------------------|----------------------------------|-----------|----------|----------|------------|
| | < 50 | 51-100 | 101-150 | > 150 | |
| | Number of respondents (%) | | | | |
| None | 68(43.0) | 67(42.4) | 18(11.4) | 5 (3.2) | 158 (36.0) |
| One | 31(18.9) | 91(55.5) | 26(15.9) | 16(9.8) | 164 (37.4) |
| Two | 11(13.9) | 32(40.5) | 17(21.5) | 19(24.1) | 79 (18.0) |
| Three or more | 5(13.2) | 8(21.1) | 10(26.3) | 15(39.5) | 38 (8.7) |
| Total (%) | 115(26.2) | 198(45.1) | 71(16.2) | 55(12.5) | 439 (100) |

For social interaction data (Table 4.5), 77.7% of respondents participated in the academic conferences including Community Pharmacy Association (Thailand) (CPA), Hospital Pharmacy association (HPA) and others. About thirty percent (29.8) of respondents joined in community pharmacy project conducted by professional organizations including Community Pharmacy Association (Thailand) (CPA), The Pharmacy Council, and others. More than half of respondents (66.3%) participated in the community pharmacy association's conference, and less than one quarter (20.7%) participated in academic conference of Association of Hospital Pharmacy (Thailand) (HPA). Data showed that the respondents participated or joined in more than one conference and project, thus some of them had either participated or joined in other meetings including Federation of Asian Pharmaceutical Associations (FAPA) conference, Provincial Academic Conference, Thai Pharmacy Association (TPA) and The Pharmaceutical Association of Thailand under Royal Patronage (PhAT).

Table: 4.5 Number of respondents participating in academic conferences and number of respondents joining in projects of professional organizations. (N=439)

| Participation in conference (%) | | Continuing education of CPA | Continuing education of HPA | Other conferences |
|---------------------------------|------------|---------------------------------------|--|-------------------|
| Participate | 341 (77.7) | 291(66.3) | 91(20.7) | 62(14.1) |
| Do not participate | 98(22.3) | - | - | - |
| Joining in project (%) | | Drug store development project of CPA | Drug store accreditation project of The Pharmacy Council | Other projects |
| Join | 131(29.8) | 61(13.9) | 69(15.7) | 27(6.2) |
| Do not join | 308 (70.2) | - | - | - |

Note: One person can participate and join in many conferences and projects.

It could be observed that the number of pharmacists, and the number of assistants were shown to be associated with the respondent is joining in projects conducted by Professional Organizations (Table 4.6). It was found that between the group of respondent joining and not joining in the project of professional organization, the proportion of respondents having more than one pharmacist was greater in the group of respondents joining in the professional organization's project. The result was the same as the comparison between the group of respondents participating and not participating in professional organization's project. Likewise, the proportion of respondents having one or more than one pharmacist assistants was greater than the proportion of those not having the assistant in the group that joined the project of professional organization than the group not joined. However, it did not

differ in the group that participated in the conference provided by the professional organization compared with the group that did not participate. The result revealed that the pharmacies which had more pharmacists and more assistants were likely to have more proportion of number of respondents joining in the projects held by the professional organization. These projects included the quality drug store project (pharmacy accreditation) conducted by The Pharmacy Council and drug store development project by Community Pharmacy Association (Thailand).

Table 4.6: Distribution of number of pharmacist and number of assistant by the respondents' participation in conference or joining in professional organization project. (N= 439)

| Social interaction | Join in project of professional organization | | Participate in conference of professional organization | |
|-----------------------------|---|------------|---|-----------|
| | Number (proportion) | | Number (proportion) | |
| | Yes | No | Yes | No |
| Number of pharmacist | | | | |
| One | 93 (0.71) | 256 (0.83) | 265 (0.78) | 84 (0.86) |
| Two or more | 38 (0.29) | 52 (0.17) | 76 (0.22) | 14 (0.14) |
| Number of assistant | | | | |
| None | 36 (0.27) | 122 (0.40) | 124 (0.36) | 34 (0.35) |
| One or more | 95 (0.73) | 186 (0.60) | 217 (0.64) | 64 (0.65) |
| Total | 131 | 308 | 341 | 98 |

Part II: Descriptive result of study variables

A. Pharmaceutical care practice;

Extent of pharmaceutical care -based pharmacy practice, and determination degree of pharmaceutical care-based pharmacy practice among community pharmacists in Thai context

For the extent of pharmaceutical care -based pharmacy practice, seven domains and twenty two items of pharmaceutical care -based pharmacy practice activities were separately assessed (see questionnaire part I). Respondents were asked their practice in four aspects of pharmaceutical care including A) primary care. B) self medication, C) chronic case, and D) severe case. The results were in the following.

a) Regarding the first aspect, primary care in which patients asked for the common disease treatment, the data showed the mean scores of the number of patients (among the last ten patients) receiving the service from the respondents. The results revealed the high provision of pharmaceutical care practice among the respondents within this aspect. The range of mean scores that patients received the services from the respondents was 7.21 ± 2.42 to 9.07 ± 1.30 . The findings indicated that all of the four items of activities related to primary care with patients were provided. The responses to this aspect were shown in table 4.7. The activity of selecting the appropriate medicine based on their symptom or illness was found to be the most important with the mean score of 9.07 ± 1.30 . Activity related to health prevention and promotion to improve health behavior was found to be the least important among these activities with the mean score of 7.21 ± 2.42 . For the other

two activities that related to the evaluation of patient's health status before providing the medication and the consultation, they were found to be moderately important for the respondents to provide these care.

Table 4.7: Mean scores of pharmaceutical care activities in primary care aspect

| Pharmaceutical care activities in primary care | Mean \pm SD | Possible range |
|---|---------------------------------|-----------------------|
| 1. Evaluate patient's health status to confirm symptom or illness before providing the medication | 8.76 \pm 1.55 | 0 - 10 |
| 2. Select the appropriate medicine based on patient's symptom or illness | 9.07 \pm 1.30 | 0 - 10 |
| 3. Give the consultation in addition to method to take medicine, for example tell about the adverse effect. | 7.48 \pm 2.16 | 0 - 10 |
| 4. Advise them to improve health behavior such as exercise and good nutrition | 7.21 \pm 2.42 | 0 - 10 |
| Total scores | 32.54 \pm 5.98 | 0 - 40 |

b) Regarding the second aspect in which the patients asked for their self medication, the data revealed moderately high provision of pharmaceutical care practice among the respondents within this aspect. The mean scores of patients received the service from the respondents ranged from 6.97 \pm 2.43 to 8.08 \pm 2.34. The responses to this aspect were shown in table 4.8. The two activities, asking about patients' symptom or illness before providing the medication, and advice the patients

about the drug administration appropriately, were found more important than the counseling activity to enhance taking medicine correctly.

Table4.8: Mean scores of pharmaceutical care activities in self-medication aspect.

| Pharmaceutical care activities in self medication | Mean \pm SD | Possible range |
|--|------------------------------------|-----------------------|
| 1. Asked about patients' symptom or illness before providing the medication | 8.08 \pm 2.34 | 0 - 10 |
| 2. Check the understanding and share the opinion with patients to enhance taking medicine correctly. | 6.97 \pm 2.43 | 0 - 10 |
| 3. Advise the patients about the drug administration appropriately. | 8.08 \pm 2.22 | 0 - 10 |
| Total scores | 23.08 \pm 6.12 | 0 - 30 |

c) Regarding the third aspect, the case of chronic disease in which patients needed to refill their medicine. This aspect comprised thirteen activities. The data revealed quite different responses to the provision of pharmaceutical care practice among the respondents within these aspects. The three documentation activities concerning the record of the patients' medication history, the record of the patients' problems in taking medicines, and the record of the appointment in following up and evaluating drug utilization were found to be least frequent. Only 0.96 \pm 2.02 to 1.64 \pm 2.61 of mean scores that patients received such services from the respondents was presented. For the other ten activities, about 3.16 to 7.72 of mean scores that patients received the service from the respondents was presented. The responses to this aspect, including thirteen activities related to pharmaceutical care in

dealing with the chronic case were shown in table 4.9 Data showed the most frequent practice in which about 7.08 to 7.72 of mean scores of patients received such services were patient assessment (*asking patients about the correctly in case they used to take the medicine*), counseling (*advice the patient about the correct way in taking medicine*) and health preventive and promotion activities (*advice activities to reduce risk behaviors*). While the less frequent practice were reported, about 3.16 – 6.97 of mean scores that patients received these service including referral (*asking the patient about the compliance to visit doctor*), medication monitoring (*asking patients about their non-compliance and the error in taking medicines, and asking about adverse drug reaction and drug interaction*), the health preventive and promotion (*adding other activities to advise them such as health brochure*) and therapeutic planning activities (*setting the medicine taking plan, changing about medicine taking plan in case of inappropriate previous plan*).

Table4.9: Mean scores of pharmaceutical care activities in chronic disease patient and need to refill medication aspect.

| Pharmaceutical care activities in chronic case | Mean \pm SD | Possible range |
|--|---------------------------------|-----------------------|
| 1. Ask patients about their previously use of the medicine, whether their drug administration were correct or not. | 7.08 \pm 2.29 | 0 - 10 |
| 2. Ask patients about their non-compliance and the error in taking medicines. | 5.92 \pm 2.44 | 0 - 10 |
| 3. Ask about adverse drug reaction. | 5.32 \pm 2.61 | 0 - 10 |
| 4. Ask about drug interaction. | 4.13 \pm 2.70 | 0 - 10 |

Table4.9: Mean scores of pharmaceutical care activities in chronic disease patient and need to refill medication aspect. (Continued)

| Pharmaceutical care activities in chronic case | Mean \pm SD | Possible range |
|--|-------------------------------------|-----------------------|
| 5. Record the patients' medication history | 1.64 \pm 2.61 | 0 - 10 |
| 6. Record the patients' problems in taking medicines | 1.38 \pm 2.43 | 0 - 10 |
| 7. Record the appointment with the patient to follow up and evaluate drug utilization | 0.96 \pm 2.02 | 0 - 10 |
| 8. Set the medicine taking plan, for example, set the ordering or dose of medicine for each patient. | 3.16 \pm 3.23 | 0 - 10 |
| 9. Changing about medicine taking plan in case of the previous plan is inappropriate. | 3.47 \pm 3.02 | 0 - 10 |
| 10. Ask the patient about the compliance to visit doctor | 6.97 \pm 2.61 | 0 - 10 |
| 11. Advise the patient about the correct way in taking medicine | 7.72 \pm 2.30 | 0 - 10 |
| 12. Advise activities to reduce risk behaviors such as smoking cessation in hypertension and congestive heart disease patients | 7.21 \pm 2.53 | 0 - 10 |
| 13. Add other activities to advise them such as brochure about health | 4.18 \pm 3.13 | 0 - 10 |
| Total scores | 59.20 \pm 21.58 | 0 - 130 |

d.) Regarding the fourth aspect, the case of severe illness, which is beyond pharmacist responsibility, the data showed the mean scores number of patients in two activities within this aspect. The data (table 4.10) showed the mean

scores which patients received the advice to visit the doctor for the follow up of their medication was about 7.54. However, only 0.73 ± 1.87 of mean scores which respondents provided the patient with referring note or form to consult with the doctor.

Table 4.10: Mean scores of pharmaceutical care activities in case of severe illness beyond pharmacist responsibility aspect.

| Pharmaceutical care activities in severe case | Mean \pm SD | Possible range |
|---|---------------------------------|-----------------------|
| 1. Advise the patient to visit doctor and follow up their medication. | 7.54 ± 3.27 | 0 - 10 |
| 2. Provide the patient with referring note/form to consult with doctor. | 0.73 ± 1.87 | 0 - 10 |
| Total scores | 8.28 ± 3.99 | 0 - 20 |

A number of activities of pharmaceutical care based-pharmacy practice were found among community pharmacists in this study. Rather, it could be presented as the total practice, and divided as the different aspects of practice including the primary care, the self medication, the chronic and severe case (see Table 4.11).

It should be noted that *the degree of pharmaceutical care-based pharmacy practice among community pharmacists in Thai context or the Thai behavioral pharmaceutical care scale (Thai BPCS) was determined by the summation scores of the numbers of patients among the last ten patients by which the respondents provided each individual pharmaceutical care activities.*

The behavioral pharmaceutical care scale in this study includes 22 activities based upon the four aspects of pharmaceutical care in Thai context which is

the non separation of prescribing and dispensing (NSPD). The scale; 0- 10 for each activity was employed. The total possible scores ranged from 0 to 220. Data showed the mean scores numbers of patients whom pharmacists provided practice as regard to total scores of twenty two activities were 123.11 ± 29.86 .

As regard to this result, most of respondents provided the activities according to self medication and primary care in primary ailments, which about 7 to 9 of 10 patients (about 70 – 90%) received these activities including confirmation the correct drug administration, patient's health status assessment before dispensing, an appropriate medication selection, a counseling besides the drug administration instruction and a the health promotion advice. All of the items of activities were scored indicating that these activities existed among community pharmacists in Thai context, although some of these activities were found minimal, including documentation and referral activities. Rather, about 8 of 10 patients were advised to visit doctors and follow up medication in severe case that beyond respondents' responsibility. For the provision of referral note/form to patient to consult with doctor, this was rarely found among the respondents.

Of the four aspects, the pharmacists provided practice of primary care and self medication with a moderately high mean score (32.54 ± 5.98 and 23.8 ± 6.12) in compared to the mean of possible range (0-40 and 0-30). It presented the moderately high scores among such aspects. Rather, the practice of chronic and severe case, low mean scores (59.20 ± 21.58 and 8.28 ± 3.99) in compared to the mean of possible range (0-130 and 0-20) were found. The total response score ranged from 30 to 216 (123.11 ± 29.86). The possible range of scores was 0 to 220.

Table 4.11: Total scores of pharmaceutical care based pharmacy practice of four aspects.

| Pharmaceutical care aspects | Total scores mean (SD) | Response range | Possible range |
|------------------------------------|-------------------------------|-----------------------|-----------------------|
| Primary care | 32.54 (5.98) | 12- 40 | 0- 40 |
| Self medication | 23.08 (6.12) | 0-30 | 0- 30 |
| Chronic case | | | |
| Refill | 59.20 (21.58) | 9-130 | 0-130 |
| Severe case | 8.28 (3.99) | 0-20 | 0- 20 |
| Total | 123.11 (29.86) | 30 -216 | 0-220 |
| Pharmaceutical care | | | |

Further, in this study, the pharmaceutical care-based pharmacy practice among Thai community pharmacists comprised seven domains and twenty two of activities. The total scores of activities in each domain were summarized in the following table (Table 4.12).

Table 4.12: Total score and mean score of individual pharmaceutical care-based pharmacy practice domains.

| Pharmaceutical care domains and its pharmaceutical care activities | Number of Items | Average Total score (SD) | Mean score* (SD) |
|---|------------------------|---------------------------------|-------------------------|
| 1. Patient assessment - Interview patient's symptom to reveal the patient's illness, - Confirm the correct drug administration, - Patient's health status assessment before dispensing | 3 | 23.88 (4.72) | 7.96 (1.57) |
| 2. Medication monitoring - Find out the patient's non-compliance, - Find out adverse drug reaction - Find out drug interaction of medication | 3 | 15.38 (6.82) | 5.13 (2.27) |
| 3. Documentation - Medication history record, - Drug use problem record, - Follow-up patient's appointment record. | 3 | 3.99 (6.46) | 1.33 (2.15) |
| 4. Therapeutic planning - Therapeutic planning, - Appropriate drug selection, - Adjust medication treatment | 3 | 15.71 (5.90) | 5.24 (1.97) |
| 5. Referral - Advise patient beyond pharmacist responsibility to follow up with physician, - Find out the patient who refill the medication continuously still have contact with doctor, - Provide patient the referral note to consult with physicians | 3 | 15.25 (5.27) | 5.08 (1.75) |

Table 4.12: Total score and mean score of individual pharmaceutical care-based pharmacy practice domains. (Continued)

| Pharmaceutical care domains and its pharmaceutical care activities | Number of Items | Average Total score (SD) | Mean score* (SD) |
|---|------------------------|---------------------------------|-------------------------|
| 6. Counseling - Provision of the medicine details, besides the drug administration, - Correct drug use advice in self care, - Correct drug use advice in medication refill, - Confirm the patients' attitude and understanding for appropriate drug use. | 4 | 30.27 (6.88) | 7.57 (1.72) |
| 7. Health prevention & promotion - Advise the patients to get better health behavior, - Advise the activities for risk behavior reduction, - Provide other activities such as the provision of drug & health brochure to patients. | 3 | 18.61 (6.37) | 6.20 (2.12) |

**Possible range of each item is zero to ten and the mean score was the total scores divided by number of items*

To compare to the mean scores of each domain, the means scores per item of each domain were used. It revealed that respondents provided the patient assessment (7.96), counseling (7.57), health preventive and promotion (6.20), therapeutic planning (5.24), medication monitoring (5.13), referral (5.08), and documentation (1.33) in respectively.

The mean scores of documentation domain (1.33) including patient's medication record, follow-up patient's appointment record, and drug use problem record were lowest. The mean scores of domain of patient assessment (7.96), and counseling (7.57) associated with the direct patient care activities were moderately high.

Respondents had moderate mean scores in medication monitoring (5.13) and health preventive & promotion. The referral activity was expected to be rarely found among Thai community pharmacist. Surprisingly, the complementary activity which is referral activity (5.08) was scored moderately. It could be observed that the mean score for total activities was more than half of the maximum score or the highest possible score. Considerably, respondents had moderately high to high scores on each domain besides the documentation activities.

B. Factor influencing pharmaceutical care practice

Social cognitive factors

For social cognitive factors including attitude, self efficacy knowledge, empathy (ASKEP) and intention, the measurement of these variables was a composite score which was the summation of scores of multiple items. The Cronbach's alpha coefficient was thus analyzed. The reliability coefficient of the scale measuring each variable was presented in Table 4.13 the result showed that all scales had the alpha of more than 0.7. The descriptive results for item-total statistics of these variables including attitudes, were presented in Appendix IX.

Table 4.13 Reliability coefficients for social cognitive measures

| Measures | Cronbach's alpha |
|------------------|------------------|
| Attitude | 0.740 |
| Self-efficacy | 0.821 |
| Knowledge | 0.859 |
| Empathy | 0.874 |
| Professionalisms | 0.884 |
| Intention | 0.910 |

Data for social cognitive factors (attitude, self efficacy, knowledge, empathy, professionalism, and intention) were presented in term of mean scores. The descriptive results for each item of these variables including attitudes, self-efficacy, knowledge, empathy, professionalism, and intention (items statistics) were presented in Appendix IX. The descriptive statistics for characteristics of each variable were explained according to the following table (Table 4.14).

Table 4.14: Mean scores of social cognitive factors

| Variable | N | Mean (SD) | Range | Scale | Possible range |
|---------------|-----|------------------|-------|-------|-------------------|
| Attitude | 439 | 58.73 (5.93) | 37-70 | 1-5 | 0- 70 |
| Self efficacy | 439 | 47.33 (6.34) | 27-60 | 1-5 | 0- 60 |

Table 4.14: Mean scores of social cognitive factors. (Continued)

| Variable | N | Mean (SD) | Range | Scale | Possible range |
|-----------------|-----|------------------|---------|-------|-------------------|
| Knowledge | 439 | 24.78 (4.22) | 9- 35 | 1-5 | 0- 35 |
| Empathy | 439 | 60.73 (7.47) | 34- 70 | 1-7 | 0- 70 |
| Professionalism | 439 | 37.32 (9.12) | 7- 49 | 1-7 | 0- 49 |
| Intention | 439 | 83.31 (11.08) | 52 -105 | 1-5 | 0- 105 |

Attitude variable toward the current pharmaceutical care-based pharmacy practice consisted of 14 items. For total items of attitude variable, the mean scores (58.73 ± 5.93) of attitude was moderately high. According to the summarized data of statistics and frequency, for each the attitude variable, it revealed the moderately high mean scores. Rather, it was found agreement to strongly agreement (median; 4- 5) among 12 items of activities of this variable (see appendix IX), but for the other two of the item 5 and item10, the respondents felt neutral toward the current pharmaceutical care based pharmacy practice were found as the followings.

Item 5: I should take notes about patients' appointment to follow up and evaluate drug utilization in chronic cases (median;3, mean \pm SD., 3.46 ± 1.09).

Item 10: It is necessary to refer the patient in case of severe disease that I cannot treat. (median;3, mean \pm SD., 3.48 ± 1.17).

For each item of self-efficacy, it revealed the moderately high mean scores (47.33 ± 6.34) of Self-efficacy variable toward the current pharmaceutical care-based pharmacy practice. The respondents were found having agreement with the level of confidence toward 11 activities of practice (median;4, mean= 3.6 ± 1.09 to 4.6 ± 0.58), but the other two item (8th and 10th); that neutral opinions with the level of confidence toward these activities were found as the following.

Item 8: It is my capability to take notes about patients' medication history or adverse drug reaction even I try to do it. (median;3, mean \pm SD., 3.36 ± 0.85).

Item 10: I can do referral process in case of severe symptom that are beyond my responsibility and my concern.(median;3, mean \pm SD., 3.31 ± 1.20).

For each item of knowledge, the respondents themselves evaluated about the degree of having knowledge in providing pharmaceutical care activities at moderately high degree (24.78 ± 4.22) toward six items of knowledge variables (median;2 -4, mean \pm SD., $3.39 \pm .710$ to $3.86 \pm .765$), besides the other one of items (item 5) which having lower degree of knowledge for conducting the referral process was found (median;2, mean \pm SD., 2.53 ± 1.07).

For each item of empathy, the respondents themselves had high to strongly agreement for all the items of empathy (total mean \pm SD., 60.73 ± 7.42). which score of range that pharmacists had empathy in providing pharmaceutical care (median;6 -7, mean \pm SD., 5.82 ± 1.39 to 6.39 ± 0.74).

For the items of professionalism, moderately high mean scores for total items were found (total mean \pm SD., 37.32 \pm 9.12), and scores of range of respondents' opinions about professionalism in providing pharmaceutical care was highly to strongly agreement (median; 6-7, mean \pm SD., 4.87 \pm 2.01 to 5.69 \pm 1.65). Comparing to the other items, the lower agreement of response was found among the item3 including;

Item 3: If I could do it over again.. I would choose the same profession. (mean \pm SD., 4.87 \pm 2.01)

For each item of intention, the respondents have moderate to high level of intention toward each activity (total mean \pm SD., 83.31 \pm 11.08), score of range of that pharmacist have intention toward 17 activities of practice was having intention to strongly intention toward practice (median; 4-5, mean \pm SD., 3.62 \pm 1.08 to 4.79 \pm 0.50), but the other four items of number 11, 12, 13, and 14 regarding the documentation and drug monitoring activities have lower of intention than the others (median: 3, mean \pm SD., 2.60 \pm 1.16 to 3.42 \pm 1.15) including;

Item 11: Recording about patients' medication history.

Item 12: Recording about patients' problems in taking medicines

Item 13: Recording about the appointment with patient to follow up and evaluate drug utilization.

Item 14: Setting the medicine taking plan, for example, set the ordering or dosage of medication for each patient.

- External factor; Barriers variable

Mean scores for *external factors* operationalized as barriers were presented in Table 4.15. Data showed that the respondents had moderate agreement levels of evaluation degree of each obstacle that influenced respondents in providing pharmaceutical care activities. Moderate agreements were found among these seven barriers.

However the range of perspective level (1-5) showed perception's vast difference among respondents, most of the respondents extremely disagreed or extremely agreed with these barriers toward practice.

For the first barrier (situation of price competitive makes me decrease the drug price), the scores were between moderate barriers and barriers toward practice (mean \pm SD., 3.34 \pm 1.18). Also the third the fourth, the sixth and the seventh barriers, where moderate agreement to agreement with these barriers influenced them in providing pharmaceutical care activities were found. While the second barrier related to workload and the fifth barrier related to lacking instrument for practice were a less rated perception by the pharmacists as than the others with means were lower than 3 (mean \pm SD., 2.74 and 2.72 \pm 1.10 and 1.17).

Table 4.15: Mean scores of barrier variables

| Barriers components | Mean | S.D |
|--|-------------|------------|
| 1. The situation of price competitive makes me to decrease the drug price. (<i>Economic data</i>) (BA1) | 3.34 | 1.18 |
| 2. I have to work hard, so I can not provide pharmaceutical care activities. (<i>Environmental factor</i>) (BA2) | 2.74 | 1.10 |
| 3. The patients' limitation of time. (<i>Environmental factor</i>) (BA3) | 3.14 | 1.05 |
| 4. The doctors do not concern about referral system. (<i>Health care system</i>) (BA4) | 3.26 | 1.22 |
| 5. The reduction of number of patients because of 30 Baht project. (<i>Health care system</i>) (BA5) | 2.72 | 1.17 |
| 6. The lacking of any instruments such as the program for recording the pharmaceutical care activities. (<i>Professional bodies</i>) (BA6) | 3.13 | 1.16 |
| 7. The lacking of law enforcement about responsibility of pharmacists to work at community pharmacy. (<i>Health care system</i>) (BA7) | 3.32 | 1.31 |

(N = 439, possible range of each barrier; 1-5)

Several barriers were identified, the respondents agreed that the situation of price competitive market and the law enforcement about the responsibility of

pharmacist to work at community pharmacist were the obstacles with moderately high influencing their practice. However, all other barriers in this study were perceived as their obstacle in providing service.

Part III: Association among study variables:

A. Association among demographic variable with pharmaceutical care practice and association among demographic variable with intention.

Further, demographics statistics was explored. The mean scores of practice and intention across predisposing factors and external factors including gender, owner, location, education, participation in conference of professionals organization, and joining in professional association's project were compared.

Bivariate analysis using Anova and t-test was performed to reveal the relationship between the demographic variables including gender, owner, location, education, participation in conference of professionals organization, and joining in project of professionals organization which were the independent variables and the two dependent variables including pharmaceutical care practice and intention. Rather, according to few number of respondents in education group 2 (master degree) and group 3 (doctoral degree), and the pharmacy location group 1 (in village) and group 3 (in department store), therefore these were grouped into two groups by 2 groups of education and 2 groups of location. For the participation in conferences and joining in projects conducted by professionals' organizations, these were categorized by 2 groups as 1) participated group, 2) do not participate group and 1) joined group, 2) do not join group.

1. Pharmaceutical care practice and demographic variable

The result in Table 4.16 demonstrated that the *gender, owner status, participation in conference of professionals organization (Part.1) and joining in professional association's project (Part.2) were found significantly associated with the practice*

Table 4.16: Test of association between demographic variable and pharmaceutical care practice

| Practice | Status | N | Mean | SD | F/t | df | p-value |
|-----------------------------|-------------------------------------|-----|---------|--------|--------|-------|---------|
| Gender | Female | 200 | 129.115 | 28.282 | 15.343 | 1,437 | .000* |
| | Male | 239 | 118.084 | 30.280 | | | |
| Owner | No | 67 | 129.806 | 26.270 | 4.003 | 1,437 | .046* |
| | Yes | 372 | 121.903 | 30.342 | | | |
| Location | In residential, or department store | 74 | 123.324 | 28.691 | .005 | 1,437 | .946 |
| | In community | 365 | 123.065 | 30.135 | | | |
| Education | Master, Doctor | 97 | 126.556 | 27.767 | 1.662 | 1,437 | .198 |
| | Bachelor | 342 | 122.131 | 30.400 | | | |
| Participation in conference | Yes | 341 | 125.038 | 28.924 | 6.451 | 1,437 | .011* |
| | No | 98 | 116.398 | 32.193 | | | |
| Joining in project | Yes | 131 | 135.282 | 28.340 | 33.311 | 1,437 | .000* |
| | No | 308 | 117.931 | 29.022 | | | |

2. Intention and demographic variable

In case of intention of community pharmacist to provide practice was dependent variable, the analysis to reveal the association among the independent demographic variables with intention was performed.

The result in Table 4.17 demonstrated that gender and joining in professional association's project (Part.2) were found significantly associated with the intention.

Table 4.17: Test of association between demographic variable and intention to do pharmaceutical care practice.

| Intention | Status | N | Mean | SD | F/t | df | p-value |
|--------------------------------|-------------------------------------|-----|--------|--------|--------|-------|---------|
| Gender | Female | 200 | 85.345 | 10.875 | 12.69 | 1,437 | .000* |
| | Male | 239 | 81.611 | 10.988 | | | |
| Owner | No | 67 | 84.210 | 10.876 | 0.517 | 1,437 | .472 |
| | Yes | 372 | 83.151 | 11.125 | | | |
| Location | in residential, department store | 74 | 84.676 | 11.501 | 1.349 | 1,437 | .246 |
| | in community | 365 | 83.036 | 10.990 | | | |
| Education | Master, Doctoral | 97 | 85.031 | 10.562 | 3.009 | 1,437 | .083 |
| | Bachelor | 343 | 82.825 | 11.191 | | | |
| Participation in conference | Yes | 341 | 81.592 | 11.841 | 3.055 | 1,437 | .081 |
| | No | 98 | 83.807 | 10.821 | | | |
| Joining in project | Yes | 131 | 81.620 | 11.196 | 25.402 | 1,437 | .000* |
| | No | 308 | 87.290 | 9.747 | | | |

B. Correlation among study variables

Pearson correlation coefficients were calculated to evaluate the relationship between variables. A matrix of Pearson correlation between study variables was presented in Table 4.18.

For the social cognitive variable, the correlations were found among attitude, self- efficacy, knowledge, empathy, and professionalism. Attitude, self- efficacy, knowledge, empathy and professionalisms were found significantly ($p=0.01$) relative to the **intention** with correlation coefficient (.598, .610, .292, .457 and .210) and relative to the **practice** with correlation coefficient (.457, .490., .354.,.420.,.287) in accordingly. The data showed that all of the social cognitive factor had significant positive correlations with practice and intention to do practice.

Regarding the attitude, it revealed that pharmacists had a moderately high score toward the pharmaceutical care which also showed significantly positive association among attitude and practice ($r = .457$). Likewise, the self efficacy had significantly positive relationship with intention ($r = .610$) and also it was significantly associated with practice ($r = .490$). Additionally, the empathy had significantly relationship with the professionalism ($r = .352$), with knowledge($r = .307$) , and the practice ($r = .420$) , but it had more relationship with intention ($r = .457$).

For predisposing factors; age ($r = -.118$), and external factors; the number of pharmacist ($r = .149$) was correlated with intention. Rather, the other external factors including the barrier variables including “the situation of price competitive makes me decrease the drug price” (BA1), “I have to work hard, so I can not provide pharmaceutical care activities” (BA2), “the doctors are not concerned with referral system (BA4), the lacking of any instruments such as the program for recording the pharmaceutical care activities” (BA6) were found correlated with **intention**. While

the factors including “I have to work hard, so I can not provide pharmaceutical care activities” (BA2), “The patients’ limitation of time”(BA3), “The lacking of any instruments such as the program for recording the pharmaceutical care activities” (BA6), “The lacking of law enforcement about responsibility of pharmacists to work at community pharmacy” (BA7) were also found correlated with **practice**.

Besides the intention and practice variables, among the barriers variables, most of these were found significantly associated with each other.

Further, the number of prescriptions had significantly associated with number of pharmacists ($r = .095$), number of customers ($r = .229$), and the number of assistants ($r = .331$).

Among social cognitive variables, professionalisms was correlated with empathy($r = .353$), self-efficacy ($r = .274$), knowledge ($r = .227$) and attitude ($r = .220$). Rather, empathy was found high correlated with attitude and self-efficacy ($r = .507$ and $.518$).

For this result, none of variable had correlation coefficient more than 0.8, which indicated the collinearity have no problem among variables.

Table 4.18: Correlation Matrix of Study Variables

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---------------------|---------|---------|---------|---------|---------|---------|---------|--------|--------|---------|--------|---------|--------|--------|--------|---------|--------|--------|----|
| 1.Attitude | 1 | | | | | | | | | | | | | | | | | | |
| 2.SE | .581** | 1 | | | | | | | | | | | | | | | | | |
| 3.Knowledge | .267** | .464** | 1 | | | | | | | | | | | | | | | | |
| 4.Empathy | .507** | .518** | .306** | 1 | | | | | | | | | | | | | | | |
| 5.Professionalism | .220** | .274** | .227** | .352** | 1 | | | | | | | | | | | | | | |
| 6.Age | -.054 | -.103* | -.057 | -.026 | .043 | 1 | | | | | | | | | | | | | |
| 7.No. of Pharmacist | .125** | .146** | .089 | -.021 | .046 | -.117* | 1 | | | | | | | | | | | | |
| 8.No. of Assistant | .030 | .082 | .011 | -.014 | .060 | -.144** | .312** | 1 | | | | | | | | | | | |
| 9.No. Prescription | .040 | .105* | .069 | .035 | .096* | -.065 | .095* | .331** | 1 | | | | | | | | | | |
| 10.No.Customer | .088 | .187** | .090 | .047 | .123** | -.207** | .321** | .405** | .229** | 1 | | | | | | | | | |
| 11.BA1 | -.133** | -.111* | -.054 | -.146** | -.224** | -.132** | .014 | .043 | -.033 | -.038 | 1 | | | | | | | | |
| 12.BA2 | -.143** | -.234** | -.137** | -.143** | -.241** | -.191** | -.003 | .079 | .018 | .098 | .300** | 1 | | | | | | | |
| 13.BA3 | -.001 | -.135** | -.073 | -.004 | -.166** | -.145** | -.083 | -.114* | -.046 | -.079 | .204** | .465** | 1 | | | | | | |
| 14.BA4 | -.131** | -.133** | -.058 | -.025 | -.182** | -.058 | -.058 | -.070 | -.099* | -.087 | .135** | .208** | .262** | 1 | | | | | |
| 15.BA5 | -.021 | -.084 | -.096 | -.100* | -.242** | .049 | -.011 | -.104* | -.058 | -.215** | .343** | .180** | .195** | .136** | 1 | | | | |
| 16.BA6 | -.153** | -.151** | -.181** | -.034 | -.115* | -.016 | -.126** | -.048 | -.046 | -.134** | .173** | .295** | .229** | .236** | .241** | 1 | | | |
| 17.BA7 | -.093* | -.025 | -.005 | -.086 | -.077 | .004 | -.071 | -.096* | -.086 | -.091* | .229** | .075 | .074 | .205** | .148** | .200** | 1 | | |
| 18.Intention | .598** | .610** | .292** | .457** | .210** | -.118* | .148** | .079 | .030 | .090 | -.103* | -.215** | -.073 | -.116* | .016 | -.141** | -.068 | 1 | |
| 19.Practice | .457** | .490** | .354** | .420** | .287** | -.072 | .111* | .017 | .005 | .044 | -.079 | -.252** | -.121* | -.085 | .028 | -.108* | -.122* | .497** | 1 |

* Correlation is significant at $p \leq 0.05$ (2-tailed)

**Correlation is significant at $p \leq 0.01$ (2-tailed)

No. = Number

BA1 = Price competition

BA2 = Workload

BA3 = Patient's time

BA4 = Physician's perception about referral activity

BA5 = Influence of "30 Baht policy"

BA6 = Lacking of instrument such as the program for recording the pharmaceutical care activities

BA7 = Lacking of law enforcement about responsibility of pharmacists to work at pharmacy

Part IV: Factors influencing the intention of community pharmacists to provide pharmaceutical care- based pharmacy practice and to identify the factors influencing the current pharmaceutical care- based pharmacy practice

A. Factors influencing the intention of community pharmacists to provide pharmaceutical care- based pharmacy practice

The first hypothesis (H1): Attitude, Self- efficacy, Knowledge, Empathy, Professionalism, predisposing factors and external factors would be associated with the intention of community pharmacists to provide pharmaceutical care- based pharmacy

To test this hypothesis, a multiple regression was employed, where the *intention* was dependent variable and 23 variables including social cognitive factors, predisposing factors and external factors were independent variables. These variables were explored and the result showed some items which were significantly associated with intention, for example gender, number of assistant, number of pharmacist. Some of independent variables were categorical variables including gender, location, education, owner status, participation and joining in projects of professional organizations, the dummy variables were thus used for these variables. The final model for this hypothesis was presented according to the multiple regression analysis of intention by using the enter regression, the result data was shown in Table 4.19.

Table 4.19: Multiple Regression Results of Factor influencing Intention of Community Pharmacists to provide Pharmaceutical care- based Pharmacy Practice: Hypothesis I.

| Variable | B | SE | B (Std. Coef.) | t | Sig. | Collinearity Statistics | |
|-------------------------------|--------|-------|----------------------|--------|--------|----------------------------|-------|
| | | | | | | Tolerance | VIF |
| Constant (intercept) | 20.667 | 5.913 | | 3.495 | .001 | | |
| Attitude | .547 | .086 | .293 | 6.346 | .000** | .553 | 1.807 |
| Self-Efficacy | .588 | .088 | .336 | 6.702 | .000** | .468 | 2.137 |
| Knowledge | -.008 | .105 | -.003 | -.076 | .940 | .736 | 1.359 |
| Empathy | .169 | .067 | .114 | 2.546 | .011* | .585 | 1.710 |
| Professionalism | -.009 | .049 | -.008 | -.192 | .848 | .739 | 1.353 |
| Competitive price | -.203 | .370 | -.022 | -.548 | .584 | .758 | 1.320 |
| Workload | -.927 | .439 | -.092 | -2.115 | .035* | .626 | 1.597 |
| Patient's time | .127 | .433 | .012 | .292 | .770 | .694 | 1.440 |
| Physician's perception | -.199 | .341 | -.022 | -.583 | .560 | .835 | 1.197 |
| 30 Baht policy | .831 | .377 | .088 | 2.204 | .028* | .743 | 1.347 |
| Lacking of instruments | -.176 | .372 | -.019 | -.474 | .636 | .772 | 1.295 |
| Lacking of Law enforcement | -.094 | .312 | -.011 | -.303 | .762 | .868 | 1.153 |
| Male | -2.279 | .848 | -.103 | -2.688 | .007* | .810 | 1.234 |
| AGE | -.076 | .045 | -.067 | -1.677 | .094 | .732 | 1.367 |
| Number of Prescription | -.020 | .017 | -.043 | -1.161 | .246 | .856 | 1.168 |
| Owner | .760 | 1.150 | .025 | .661 | .509 | .844 | 1.185 |
| Number of Customer | -.261 | .395 | -.028 | -.662 | .509 | .680 | 1.472 |
| Number of Pharmacist | .578 | .640 | .034 | .904 | .367 | .810 | 1.234 |
| Number of Assistant | .232 | .170 | .057 | 1.368 | .172 | .689 | 1.451 |

Table 4.19: Multiple Regression Results of Factor influencing Intention of Community Pharmacists to provide Pharmaceutical care- based Pharmacy Practice: Hypothesis I. (Continued)

| Variable | B | SE | B (Std. Coef.) | t | Sig. | Collinearity Statistics | |
|-----------------------------|-------|-------|----------------------|-------|-------|----------------------------|-------|
| | | | | | | Tolerance | VIF |
| Participation in conference | -.494 | .978 | -.019 | -.505 | .614 | .871 | 1.149 |
| Joining in project | 2.056 | .935 | .085 | 2.198 | .028* | .789 | 1.268 |
| Education | -.678 | .990 | -.025 | -.685 | .494 | .856 | 1.168 |
| Location | -.882 | 1.036 | -.030 | -.851 | .395 | .960 | 1.042 |

Model $R^2 = 0.511$; adjust $R^2 = 0.484$

F = 18.845 , 23 and 415 Df, p = 0.000 , n = 439

Dependent variable; Intention

Note: Dummy (0,1) for predictors; Gender , Location, Education, Owner, Participation in conference,

Joining in project

* Significance at $p \leq 0.05$ (2-tailed) ** Significance at $p \leq 0.01$ (2-tailed)

The result showed that this model could explained 51.1% of the variation of behavioral intention and seven independent variables were significantly associated with the intention of community pharmacists to provide pharmaceutical care- based pharmacy practice including;

1. Attitude
2. Self-efficacy
3. Empathy
4. Work load (Barrier 2)

5. Perception of the influence of “30 Baht policy” (Barrier 5)
6. Gender
7. Joining in professional organizations’ project (Part.2)

The variables which were found to significantly determine behavioral intention were attitude, self-efficacy, empathy, workload, perception of the influence of “30 Baht policy”, gender, and joining in professional organizations’ project. The respondents’ attitude, self- efficacy, and empathy were found positively associated with the intention to do practice. The two most important influencing factors of behavioral intention were attitude and self-efficacy ($p < 0.001$). Further, data revealed that more workload and less perception the influence of “30 Baht policy” were related to lower intention of respondents to do practice. While the female respondents were found to have more intention toward practice than male respondents.

Collinearity diagnostic tests were first checked for detecting the violation of the assumptions of regression analysis. The variance inflation factor (VIF) and tolerance was used to measure collinearity in a multiple regression analysis. A rule for evaluating VIF is to be concerned with any value larger than 10 and tolerance which should be near to 1. For this study, all hypothesized models had VIF and tolerance which did not showed multi- collinearity.

Residual values were plotted versus predicted values for each model. The scatter plots also indicated no signs of non-constant variance or nonlinearity.

B. Factors influencing community pharmacists to provide the current pharmaceutical care- based pharmacy practice.

The second hypothesis (H2): Attitude, Self- efficacy, Knowledge, Empathy, Professionalisms, Intention, predisposing factors and external factors would be associated with the current practice of community pharmacists to provide pharmaceutical care- based pharmacy practice.

To test this hypothesis, a multiple regression was employed, which the current pharmaceutical care- based pharmacy practice was dependent variable and 24 variables including social cognitive factors, predisposing factors and external factors were independent variables. These variables were explored and the result showed some items which were significantly correlation with the practice, for example gender, owner, participation in professional association's conference (Part1), and joining in professional association's project (Part.2). Likewise the variables in the first hypothesis regression model, some of independent variables were categorical variables including gender, location, education, owner status, participation, and joining in projects of professional organizations, the dummy variables were thus used for these variables. The final model for this hypothesis was presented according to the multiple regression analysis of intention by using enter regression, data were shown in Table 4.20. The result showed that this model could explained 42.4 % of the variation of behavioral intention and seven independent variables were significantly associated with the current pharmaceutical care- based pharmacy practice of community pharmacists including;

1. Attitude
2. Self-efficacy

3. Knowledge
4. Empathy
5. Professionalism
6. Intention
7. Work load (Barrier 2)
8. Perception of the influence of “30 Baht policy” (Barrier 5)
9. Lacking of law enforcement for pharmacists’ responsibility in working
at community pharmacy (Barrier 7)
10. Gender
11. Joining in professional organizations’ project

Table 4.20: Multiple Regression Results of Factor influencing Community Pharmacists to provide the Current Pharmaceutical care- based Pharmacy Practice: Hypothesis II.

| Variable | B | SE | B (Std. Coef.) | t | Sig. | Collinearity Statistics | |
|-------------------------|---------|--------|----------------------|--------|-------|----------------------------|-------|
| | | | | | | Tolerance | VIF |
| Constant (intercept) | -27.505 | 17.563 | | -1.566 | .118 | | |
| Attitude | .680 | .264 | .135 | 2.569 | .011* | .505 | 1.982 |
| Self-Efficacy | .633 | .270 | .134 | 2.342 | .020* | .422 | 2.368 |
| Knowledge | .940 | .308 | .133 | 3.057 | .002* | .736 | 1.359 |
| Empathy | .400 | .196 | .100 | 2.038 | .042* | .576 | 1.736 |
| Professionalism | .343 | .142 | .105 | 2.416 | .016* | .739 | 1.353 |
| Intention | .418 | .144 | .155 | 2.909 | .004* | .489 | 2.044 |
| Competitive price | .976 | 1.084 | .039 | .901 | .368 | .757 | 1.320 |
| Workload | -3.291 | 1.291 | -.121 | -2.550 | .011* | .620 | 1.614 |
| Patient’s time | -1.167 | 1.269 | -.041 | -.920 | .358 | .694 | 1.440 |

Table 4.20: Multiple Regression Results of Factor influencing Community Pharmacists to provide the Current Pharmaceutical care- based Pharmacy Practice: Hypothesis II. (Continued)

| Variable | B | SE | B (Std. Coef.) | t | Sig. | Collinearity Statistics | |
|-----------------------------|--------|-------|----------------------|--------|--------|----------------------------|-------|
| | | | | | | Tolerance | VIF |
| Physician's perception | .633 | .999 | .026 | .634 | .527 | .834 | 1.198 |
| 30 Bath policy | 2.307 | 1.111 | .090 | 2.077 | .038* | .734 | 1.363 |
| Lacking of instruments | .880 | 1.089 | .034 | .808 | .419 | .772 | 1.296 |
| Lacking of Law enforcement | -2.160 | .914 | -.095 | -2.364 | .019* | .867 | 1.153 |
| Male | -5.223 | 2.503 | -.087 | -2.086 | .038* | .796 | 1.256 |
| AGE | -.140 | .133 | -.046 | -1.051 | .294 | .727 | 1.376 |
| Number of Prescription | -.066 | .051 | -.052 | -1.300 | .194 | .854 | 1.172 |
| Owner | -4.448 | 3.369 | -.054 | -1.320 | .187 | .843 | 1.186 |
| Number of Customer | -.713 | 1.157 | -.028 | -.616 | .538 | .679 | 1.473 |
| Number of Pharmacist | .823 | 1.875 | .018 | .439 | .661 | .809 | 1.237 |
| Number of Assistant | -.321 | .498 | -.029 | -.645 | .519 | .686 | 1.457 |
| Participation in conference | 1.915 | 2.864 | .027 | .668 | .504 | .870 | 1.149 |
| Joining in project | 7.983 | 2.753 | .122 | 2.899 | .004** | .780 | 1.282 |
| Education | .471 | 2.900 | .007 | .162 | .871 | .855 | 1.170 |
| Location | 1.264 | 3.036 | .016 | .416 | .677 | .958 | 1.044 |

Model $R^2 = 0.424$; adjust $R^2 = 0.391$

F = 12.711 , 24 and 414 Df, p = 0.000, n = 439

Dependent variable: Pharmaceutical based- pharmacy practice

Note: Dummy (0,1) for predictors; Gender, Location , Education, Owner, Participation in conference, Joining in project

* Significance at $p \leq 0.05$ (2-tailed) ** Significance at $p \leq 0.01$ (2-tailed)

The regression results showed that attitude, self efficacy, knowledge, empathy, professionalism (ASKEP), intention, perception of the influence of the “30 Baht policy” , and joining in projects of professional organizations were positively and significantly associated with pharmaceutical based- pharmacy practice. and the other three including workload and gender(male) and the lacking of law enforcement about responsibility of pharmacists to work at community pharmacy, were found significantly negative related with the pharmaceutical based- pharmacy practice. The important internal factors influencing the respondent to provide pharmaceutical care provision were their behavioral intention and knowledge ($p < .01$), and also the attitude, professionalisms, self-efficacy and empathy ($p < .05$) in respectively.

Similar to the multiple regression of factor influencing Intention of community pharmacists to provide Pharmaceutical care- based Pharmacy Practice in hypothesis I., the collinearity diagnostic tests were also checked and data did not show multi- collinearity.

The third hypothesis:H3, this hypothesis investigated only the association between the intention and the current practice of community pharmacists to provide pharmaceutical care-based pharmacy practice. Regarding the correlation matrix, data demonstrated that the intention was significantly associated with practice ($r = 0.497$, $p\text{-value} < .001$).

For the summarized result, it revealed that pharmaceutical care provision was the practice behavior of interested variable for this study. Besides, gender, where female respondents significantly provided practice more than male respondents. The other internal factors regarding the social cognitive factors including attitude, self-

efficacy, knowledge, empathy, professionalisms (ASKEP) were significantly positive associated with the practice. External factors including a workload that relevant to the practice environment factor and the lacking of law enforcement of having pharmacists attending at all pharmacies that relevant to health system factor were found to be the barriers for the respondent to provide their practice. While the respondent had more perception of the influence from the “30 Baht policy”, they were likely to provide more practice. Further, the more joining of the respondent in professional organizations’ project particularly in quality drug store project, the more providing of their practice was found.

Another dependent variable of interest in this study was pharmacists’ intention to provide pharmaceutical care. The only three social cognitive included attitude, self-efficacy, and empathy were found to significantly associated with intention. Likewise the practice, respondents who perceived that they have a high workload and high perception of the lacking of law enforcement of having pharmacists attending at all pharmacies were likely to have low intention to do practice. Contrary to the respondent who had more perception of the influence from “30 Baht policy”, they were likely to intend to provide practice. For social interaction of the respondent regarding joining in professional organizations’ project particularly in pharmacy accreditation project, it showed positively influencing their intention.

As the result, the full model explaining the Factors influencing Pharmaceutical care-based Pharmacy practice among Community Pharmacists in Thai context according to the present study would be proposed as the following (see Figure 4.2).

The regression model revealed eight of variables positively significantly influenced pharmaceutical care-based pharmacy practice by internal factors including social cognitive variable; Attitude (*Att*), Self-efficacy (*SE*), Knowledge(*Kn*), Empathy (*Emp*), Professionalisms(*Pro*), Intention (*Int*), and external factors including reduction of customer volume from “30 Baht policy” (*Ba5*), and joining in professional organizations’ project (*Part2*) with the regression coefficient (unstandardized) of .680, .633, .940, .400, .343, .418, 2.307, 7.983 respectively. While the other three variables of Male (*gender*), workload (*Ba2*), and law enforcement for having pharmacists work at pharmacies (*Ba7*) showed negative effect toward such practice with the regression coefficient (unstandardized) of -5.233, -3.291, -2.160 respectively.

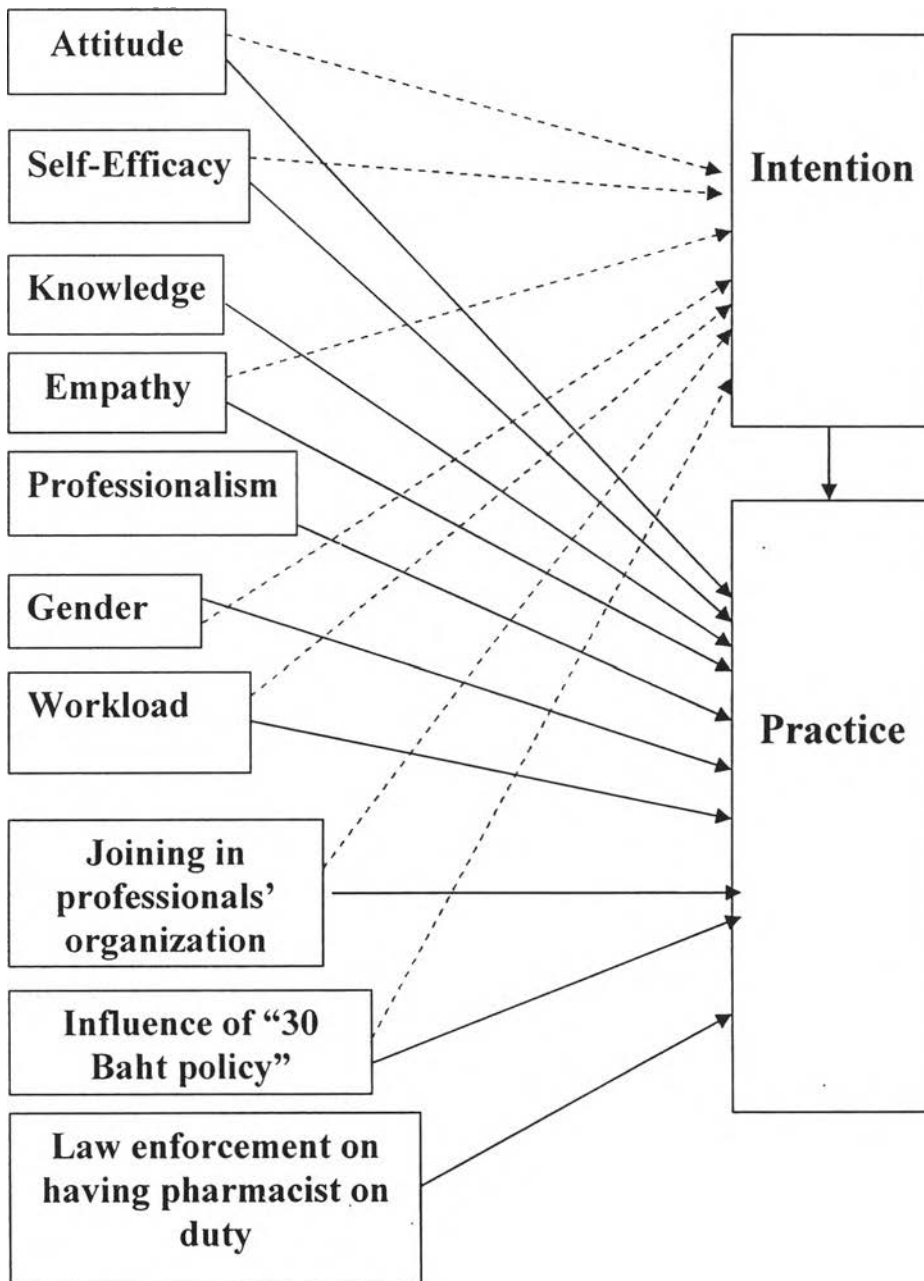


Figure 4.2: Factors influencing Pharmaceutical care-based Pharmacy practice among Community Pharmacists in Thai context

On the other hand, in comparing the importance of relationship among dependent and independent variables, the standard regression coefficient (beta) was appropriately used to indicate these influencing factors of the practice and also the intention.

Similar to the value of regression coefficient (unstandardized), the pharmaceutical care-based pharmacy practice of the pharmacist was shown positively and significantly influenced by eight variables of internal social cognitive factors including attitude, self-efficacy, knowledge, empathy, professionalisms, intention and external factors including perception of reduction of customer volume from “30 Baht policy”, and joining in professional organizations’ project with the standard coefficient of .135, .134, .133, .100, .105, .155, .090 and .122 respectively. On the contrary, other three variables of male (gender), workload, and lacking law enforcement for having pharmacists attendance at pharmacies with the standard coefficient of -.087, -.121, and -.095, which these factors negatively explained the pharmaceutical care-based pharmacy practice. Rather, regarding these value (standard regression coefficients) among the social cognitive variable, the behavioral intention was found to have the strongest relationship with the practice and less relationship was found among attitude, self- efficacy, knowledge, empathy and professionalism in orderly. While the external factor regarding the joining in professional organizations’ project of respondent, it influenced the practice more than the other two of perception of reduction of customer volume from the “30 Baht policy”, and lacking law enforcement for having pharmacists attendance at pharmacies

For the pharmacist’s intention to do practice, it was positively and significantly influenced by five variables of attitude, self-efficacy, empathy,

perception the influence from “30 Baht policy”, and joining in professional organizations’ project with the standard coefficient of .293, .336, .114, .088, and .085 respectively and negatively explained in the other two variable of Male (gender) and workload with the standard coefficient of -.103 and -.092. The attitude and self-efficacy were found to have stronger relationship with the intention than the other social cognitive factor, regarding empathy variables. While the external factor, including workload, perception the influence from “30 Baht policy”, and joining in professional organizations’ project presented the important factors influencing the intention to provide practice.

Considerably, the findings presented that female pharmacists had intention and likely performed pharmaceutical care practice more than male pharmacists, while pharmacists who had a higher workload had negative value toward intention and the practice. Pharmacists who had joined in project of professional organization had more positive value than the others. The more attitude, self-efficacy, and empathy of pharmacists, the more intention and practice were presented. Rather, regarding the internal social cognitive factors, the strong influencing factors of intention to do practice were attitude and self-efficacy, while the intention was the most important internal behavioral factor influencing the practice and the others including attitude, self-efficacy and knowledge were also the important influencing factors toward the practice.