CHAPTER III

METHODOLOGY

This chapter is comprised of the details of research design, survey instrument development, population and sample, study variables and measurement, data collection, and data analysis.

Research Design

The research design was a cross- sectional mail survey. This study included both qualitative and quantitative methods in the process. The first part used a qualitative method including a pilot in-depth interview and a focus group. The second part was a quantitative study using a cross- sectional mail survey. The study included but was not limited to exploring the extent of community pharmacists in Thailand to provide pharmaceutical care-based pharmacy practice. In-depth interviewing and a focus group discussion among a sample of community pharmacists were used to help identifying or clarify the existing behavioral pharmaceutical care activities in Thai context in terms of domains, activities and items, which were used to develop the survey instrument. The survey instrument was employed to assess the extent of the provision of pharmaceutical care by community pharmacists and to investigate the influencing factors of the intention and practice of pharmaceutical care-based pharmacy service. The survey instrument which was a self-administered questionnaire was sent by mail to the sample subjects, and followed

up with a reminder post-card 10 days later, and by mail 4 weeks later; telephone contact was used to follow up non respondents. The time for data collection was 8 weeks.

Survey Instrument Development

The development of a survey instrument in this study was comprised of five methods including 1) in-depth interviewing, 2) employing a focus group, 3)constructing survey instrument, 4) conducting a pre test, and 5) conducting a pilot test. The first two methods were used to identify and clarify the existing behavioral pharmaceutical care activities in a Thai context in terms of domains and activities. The later three methods were used to construct the instrument with validity and reliability testing. The instrument was used to obtain information from the respondents based on the research objectives including both dependent and independent variables under the study.

1. The in-depth interview The in-depth interview was carried out from June 10th to 30th, 2003, among eleven community pharmacists practitioners, who were the members of Community Pharmacy Association (CPA) Thailand and were practicing part time or full time in Bangkok. Samples were purposive selected in different geographical locations including 1.) near the traffic road, 2.) in the department store, 3.) in the village, and 4.) near the hospital. In each location, one independent drug store and one chain drug store were selected. The open questions were used more freely for the respondents to reveal the actual behavior regarding the

opinions related to the items or activities of interest and concern (Aldridge and Levine, 2001). The results revealed some opinions and attitudes and some traces of pharmacy services toward pharmaceutical care in terms of existing activities in a Thai context. Several opinions regarding pharmaceutical care definitions and activities were proposed in the terms of being responsible for dispensing of rational drugs with correct medication advice and counseling. Rather, provisions of drug and medication information, health prevention and promotion, and advice to the patients who come back to refill medication to follow up with their physicians, were addressed. The step approaches and results of this pilot interview are shown in appendix I and II. According to the Thai drug system with a non-separation role of prescribing and dispensing, four patterns of health seeking of patients were found among community pharmacists, including self- medication, primary care in primary ailments, refill medication without prescription or self refill, and refill medication by prescription. Many interesting issues have been acknowledged in this method and it would be beneficial to use them in further studies to explore the extent of pharmacy practices, related to pharmaceutical care in a real setting.

Regarding the result of pilot interview, it could not allow enough discovery of new concepts and ideas concerning the pharmaceutical care provision in the real setting of a Thai context. A focus group was thus an alternative method to seek a different point of view of pharmaceutical care service among community pharmacists in this real practice with creditability by experts. Activities of pharmaceutical care-based pharmacy practice that remained untapped would be revealed (Kitzinger, 1995; Gibb, 1997).

2. Employing focus group The focus group was organized on November 14, 2003, the participants consisted of twelve people. The sample was purposively selected from practitioners, experts, and researchers. Participants were 1.) six community pharmacists who were members of the Community Pharmacy Association and had good potential to provide the terms of pharmacy services, 2) three clinical pharmacists (one of them was the representatives from Community Pharmacy Association and two of them were the committee of The Pharmacy Council who were board of pharmaceutical care experts) and 3) three experts from the Social and Administrative Pharmacy Department. The work steps included A) preparation of manuscript for the focus group and B) arrangement of focus group session.

A. Preparation of manuscript for the focus group

The preparation of manuscript for the focus group included

a) Clarification of the problem of pharmacy practice.

b) Identification of the questions related to the concept of pharmaceutical care-based pharmacy practice in a Thai context.

c) Preparation of the first draft of questions relevant to the objective of the research.

d) Revision of the questions in the survey instrument by the experts and practitioners.

The details of the preparation were described in the following

a) *To clarify the problem of pharmacy practice* in a Thai context, background of pharmacy practice in Thailand and other countries concerning the definitions and measurements of pharmaceutical care and its influencing factors,

criteria of quality assurance in pharmacy practice of community pharmacy accreditation (Pharmacy council, 2003), and a pilot interview result were studied.

b) To identify the questions related to the concept of pharmaceutical care-based pharmacy practice in Thai context, domains and activities in regard as the Behavioral Pharmaceutical Care Scales (BPCS), and the key terms, whether the concepts, activities and barriers toward pharmaceutical care-based pharmacy practice from a pilot interview's study among Thai community pharmacists were used.

c) To prepare the first draft of questions relevant to the objective of the research, the probes of the session aiming to gather the comments and/or recommendations regarding items/domains of the pharmaceutical care-based pharmacy practice of community pharmacists in a real setting in Thailand were employed. Probes and questions to explore opinions among a group session included definitions, perceptions and pharmacy practice activities related to pharmaceutical care in Thai context and its influencing factors were constructed.

d) Revision of the questions in the survey instrument by the experts and practitioner was addressed. As a result, the manuscript including the topic guide for moderator and dialogue of the questions and probes were prepared , the topics were as follows:

1. What is the definition of pharmaceutical care by Thai community pharmacists?

2. What pharmacy service provided to patients in drug store that would be determined as pharmaceutical care provision?

3. What is the perception of pharmaceutical care by Thai community pharmacists?

4. What are the factors affecting pharmaceutical care?.

B. Arrangement of focus group session

a) A meeting room for focus group session was prepared.

b) Audio-tapes were used to record the statements and/or discussions by each participant.

c) Two note takers were engaged.

d) Invitation letters (appendix III) were sent to all participants.

e) Consent forms for participants were prepared.

Therefore, the moderator guide concerning the discussion topics for this focus group were ready to use as illustrated in appendix III.

The discussion of this focus group was audiotape-recorded and notes were taken. Recordings were transcribed and written up. The information was collected and clarified so that pharmaceutical care concepts, relevant activities and items would be revealed. Revised data and content validity were assessed by experts. Finally, data were synthesized to get domains and activities of pharmaceutical care- based pharmacy practice among Thai community pharmacists.

Regarding this focus group, the result of preliminary content analysis of the data showed several key terms. The discussion of the knowledge of pharmaceutical care showed that the community pharmacists in Thailand had a positive attitude toward pharmaceutical care service, they provided a number of

pharmacy services that were related to pharmaceutical care in different point of views. The general concept of pharmaceutical care was expressed in various terms such as '*responsibility specific to patients in an appropriate use of drugs*', '*providing counseling service at drug store when patients don't get such service from clinics or hospitals*', and '*doing more patient care rather than just dispensing*'. Further, focus group results indicated that patients would not have better health and good quality of life, unless the individual internal factors including professionalism and empathy are emphasized. Influencing factors toward this patient care were proposed (appendix IV), most were barriers including price competition, patient time, cooperation from physicians, location, attitude, intention, and perception of the influence of 30 baht policy, and professional bodies support.

Regarding the three aspects of care including primary care (1st care) in patients with primary ailments, secondary care (2nd care) in chronic cases, and tertiary care (3rd care) in severe cases who need hospitalization, these different aspects of the pharmaceutical care has been studied. For primary care in the Thai drug system, community pharmacists have both roles, including selecting and dispensing the medication. Self medication mostly found in pharmacy outlets was also mentioned. Refill medication without prescription in chronic patients was also discussed. In addition, a requesting of medication with prescriptions was also explored. Besides the traditional care of just counseling, good pharmacy services such as patient assessment activities and drug monitoring from the community pharmacists were also mentioned, particularly in chronic cases. In chronic cases, refill medication without prescription were mostly found. In these cases, additional extensive care service should be concerned. One of these services was referral activity regarding advising

the patients who refilled the medicine to follow and monitor the medication from the physician. Moreover, in the chronic case that was beyond the pharmacists' responsibility, the patient should be referred to physicians. Rather, the community pharmacist should have patient assessments and therapeutic planning either for primary ailments or chronic cases. The knowledge from this study was that pharmacy service related to pharmaceutical care among Thai community pharmacists included seven domains with twenty two activities. The seven domains were 1) patient assessment, 2) medication monitoring. 3) documentation, 4) therapeutic planning, 5) referral, 6) counseling, and 7) health preventive/ promotion activities. The activities of each domains were shown in Table 3.1.

Table 3.1: Domains and activities of pharmaceutical care among Thai community pharmacists from a focus group study.

Pharmaceutical care domains	Activity items
1. Patient assessment	1.1 Interview patient's symptoms to reveal the patient's illness, 1.2 Confirm the correct drug administration. 1.3 Assess patient's health status before dispensing.
2. Medication monitoring	2.1 Find out the patient's non- compliance. 2.2 Find out adverse drug reaction, 2.3 Find out drug interaction of medication.

Table 3.1: Domains and activities of pharmaceutical care among Thai community pharmacists from a focus group study. (Continued)

Pharmaceutical care domains	Activity items
3. Documentation	3.1 Record Medication history, 3.2 Record drug use problem , 3.3 Record follow-up patient's appointment.
4. Therapeutic planning	4.1 Therapeutic planning, 4.2 Appropriate drug selection, 4.3 Adjust medication treatment.
5. Referral	5.1 Advise patient beyond pharmacist responsibility to follow up with physician, 5.2 Find out if the patients who refill the medication continuously still have contact with doctor, 5.3 Provide patient with the referral note to consult with physicians
6. Counseling	6.1 Provision of the medicine details, besides the drug administration, 6.2 Correct drug use advice in self care, and medication refill, 6.3 Confirmation the patients' attitude and understanding of appropriate drug use.
7.Health prevention and promotion	7.1 Advise the patients to get better health behavior, 7.2 Advise of the activities to reduce risk behaviors, 7.3 Give other activities such as the provision of drug info and health brochure to patients.

The patients' health seeking behavior found among community pharmacies in a Thai context included self medication, receiving primary care service, refill medication, and requesting medication with prescriptions. In an other way, it accomplished three main activities, namely cores, complementary, and instrumental activities that were shown in appendix IV. Therefore, the pharmaceutical care services were provided by different dimensions through pharmacy outlets in daily practice.

3. First draft of a survey questionnaire Regarding the focus group result, the first draft of a survey questionnaire was constructed. Seven domains and twenty two activities of pharmaceutical care-based pharmacy practice in accordance with the dimensions of health care among community pharmacists in Thai context were employed in the first part of the survey instrument. The questionnaire was divided into three main sections including pharmaceutical care-based pharmacy practice, influencing factors, and demographic factors sections.

This survey instrument was revised by the researcher and experts. The first draft survey instrument was obtained and ready to be pre-tested in late March, 2004.

4. Pre-test A developing survey instrument was pre-tested with ten respondents from the target population who were community pharmacists practitioners and also members of the Community Pharmacy's Association. Content and face validity were reviewed by four experts and the researcher, which three of experts were from Social Administrative Pharmacy Department and one of them was the clinical pharmacist. The length of the final questionnaire was eight pages.

5. Pilot test The questionnaire was pilot tested from April 12, 2004 to May. 12. 2004 among fifty respondents who were the community pharmacist practitioners, and also members of the Community Pharmacists Association (Thailand) (CPAT). They were systemically and randomly selected from the target population lists. Questionnaires attached with accredited letters from the president of the community pharmacy association were sent and were followed by reminder postcards 10 days later. A telephone contact for non- respondents after 4 weeks accompanied the resent mail questionnaires on request. The total response rate was 40 percent (20/50). The reliability of social cognitive variables included attitude, self-efficacy, knowledge. empathy, professionalisms, and intentions greater than 0.7 (as shown in Table3.2).

Table 3.2: Reliability coefficients for measures variables

Measures variables	Cronbach's alpha
Attitude	0.7368
Self efficacy	0.7975
Knowledge	0.8298
Empathy	0.8050
Professionalisms	0.7050
Intention	0.9063

Conclusively, a survey instrument was available, to be used in the cross sectional mail survey (see appendix VI).

Population and Sample

The target population was the community pharmacists who are members of the Community Pharmacy Association (Thailand) (CPA) and practicing in community pharmacies, whether full time or part time. This sampling frame was listed by CPA in 2003.

Sample subjects who did not meet these criteria were taken off the list. The sample size was determined by Cohen (1998), using the concept of power analysis at the power of 80% with the medium effect size (r =0.30), and alpha (0.05), while the sample size for this study would be 216. Accordingly, the response rate of studies related to pharmacy practice in Thailand was minimal, 30- 35 were reported. Thus, the mail survey questionnaire was to be sent to at least 720. To assure that this study had more representatives, for this study, all samples of the list would be used. 50 subjects were used in the pilot test, indeed samples were 1070 legible cases (1120-50).

Study Variables and Measurement

The study variables comprised independent variables (IV) and dependent variables (DV). Independent variables were classified to internal and external factors. The operational definition of study variables and measurement were as following:

Dependent variable (DV) comprised Pharmaceutical care-based pharmacy practice and the intention toward this practice.

a) Pharmaceutical care-based pharmacy practice: The measure for Pharmaceutical care-based pharmacy practice dependent variable was developed. According to Thai context, 22 items of activities in 7 domains found in focus group were used for operating. For the measures of pharmaceutical care-based pharmacy practice, 22 activities were accordantly asked 4 scenarios of health seeking behavior, which were a common disease treatment with primary care, self-medication, a chronic disease with refill medication, and a severe illness out of pharmacists' responsibility. The items of each scenario are presented as the following.

The respondents were asked to indicate how many of their last ten patients' activities were provided. The score of each activity ranged from zero for none of the patients to ten for all of the patients. The pharmaceutical care provision score was a sum of all twenty two items and ranged from 0 to 220.

Items for measuring pharmaceutical care- based pharmacy practice variables were asked in four scenarios (a-d) including the following;

i) ***Common disease treatment with primary care***

1.Evaluate patient's health status to confirm symptom or illness before providing the medication

2.Select the appropriate medicine based on their symptom or illness

3. Provide the consultation in addition to drug administration, for example inform about the adverse effect.

4.Advise patients to improve health behavior, such as exercise and good nutrition

ii) *Self-medication.*

1. Ask about patients' symptom or illness before providing the medication.

2.Check the understanding and share the opinion with patients to enhance taking medicine correctly.

3. Advise the patients about the drug administration appropriately.

iii) *Chronic disease patient and the need to refill their medicine.*

1. Ask patients in case they used to take the medicine, whether their drug administration were correct or not.

2. Ask patients about non-compliance and the error of taking medicines.

3. Ask about adverse drug reaction

4. Ask about drug interaction

5. Record the patients' medication history

6. Record the patients' problems in taking medicines

7. Record the appointment with the patient to follow up and evaluate drug utilization.

8. Set the medicine-taking plan, for example, set the ordering or dose of medicine for each patient.

9. Changing the medicine-taking plan in case the previous plan is inappropriate.

10. Ask the patient about the compliance to visit the doctor

11. Advise the patient about the correct way in taking medicine

12. Advise activities to reduce risk behaviors such as smoking cessation in hypertension and congestive heart disease patients

13. Add other activities to advise them such as brochures about health

iv) ***Severe illness beyond pharmacists' responsibility.***

1. Advise the patient to visit doctor and follow up their medication
2. Provide the patient with the referral note/form to consult with the doctor.

Regarding the conceptual framework, the other dependent variable was intention toward pharmaceutical care based pharmacy practice. Likewise the dependent variable of practice, the measure of intention was based the relevant items of activities of pharmaceutical care based pharmacy practice.

b) Intention: Intention was operationalized as the intention of the pharmacist to provide pharmaceutical care- based pharmacy practice within the next two weeks. Twenty-one items were constructed according to the same scenario of the first part of pharmaceutical based pharmacy practice. For example; "do you intend to advise the patients to improve health behavior such as exercise and good nutrition during the next 2 weeks?". Measures for intention variable comprised the following items:

Intention was measured by asking, "Do you intend to show the level of intention in each activity during the next 2 weeks?" using the five -point Likert scale, ranking from strongly not intend (1) to strongly intend (5). The score of intention was a sum of all twenty one items and range from0 -210.

In case of customers asking for common disease treatment:

1. Evaluate patient's health status to confirm symptom or illness before dispensing.
2. Considerably select the appropriate medicine based on their symptom or illness

3. Provide consultation in addition to methods of taking medicine, for example informing about the adverse effect.
4. Check the understanding and share the opinion with the patient to enhance the correct taking of medicine.
5. Advise them to improve health behavior such as exercise and good nutrition.

In case the customer asking for their self-medication:

Advise about the method to take medicine for the patient.

In case of chronic disease patient who need to refill their medication.

1. Ask them about correctly taking in case they used to take the medicine
2. Ask about their non-compliance and the error in taking medicines.
3. Ask about adverse drug reaction
4. Ask about drug interaction
5. Taking of notes about patients' medication history
6. Taking of notes about patients' problems in taking medicines
7. Taking of notes about the appointment with patient to follow up and evaluate drug utilization
8. Set the medicine taking plan, for example, set the ordering or dose of medication for each patient.
9. Changing medicine taking plan in case the previous plan is inappropriate.
10. Ask the patient about the compliance to visit doctor
11. Advise the patient about the correct way in taking medicine
12. Advise activities to reduce risk behaviors such as smoking cessation in hypertension and congestive heart disease patients

13. Add other activities to advise them such as brochures about health

In case of severe illness which is beyond your responsibility

1. Advise them to visit doctor

2. Refer them to visit doctor with referring form

Independent variables (IV) comprised a number of influencing factors toward pharmaceutical care provisions, which were internal factors and external factors.

a) ***Internal factors*** included i) social cognitive factors and ii) predisposing factors.

i) ***The social cognitive factors:*** these variables included attitude, self efficacy, knowledge, empathy, professionalism and intentions. For the lists of the items to measure each variable, these were operationalized as the following.

Attitude: The attitude toward the practice related to each domain and items of pharmaceutical care-based pharmacy practice in part I was operationalized as the opinion in performing the current practice/ pharmaceutical care- based pharmacy practice. Fourteen items were constructed. For example, not being necessary to ask the patients in cases of refill medication, as they will not have enough time, or not refill medication by themselves. Measures for attitude variables were comprised of the following items:

***Attitude was measured by asking**, "In your opinion, what is the level of agreement in each activity?", using the five -point Likert scale, ranking from strongly agree (5) to strongly disagree(1.)*

1. I have to know about patients' symptom and illness clearly, before dispensing medicines.

2. I should know about patients' medication history before dispensing medicines to optimize the drug used.

3. Information about patients' medication history make me confused about selecting medicine for them.

4. I think that taking notes / records about patients' medication history and problems in taking medicine is a waste of time.

5. I should take notes / records about patients' appointment to follow up and evaluate drug utilization in chronic cases.

6. I have to consider medicine taking plans and selection of medicine based on evidence after evaluating the patient.

7. My important consideration is to change the medicine-taking plan if there were drug problems for the patient.

8. Advise patients to visit the doctor in case of severe symptoms that are out of my responsibility and concern.

9. It is not necessary to ask the patient in case of refill medicine. Because of the patient's' restricted time or the patients not refilling by themselves.

10. It is not necessary to refer the patient in cases of severe disease that I cannot treat.

11. In a situation where the patient doesn't have the time or ask for suggestions, I

should ignore counseling about other information of medicine, for example, describing to the patient about ineffective therapy in case drug interaction was found.

12. It is my responsibility to advise the patient about methods to take medicines either in self-medication cases or in refill medicine cases to gain the benefit of taking medicines.

13. In order to increase the patients' participation in treatment and health care processes, I have to advise them about changing health behaviors such as exercise.

14. It is not necessary that the patients should get other brochures or published papers about health in addition to my advice.

Self Efficacy: Self Efficacy was operationalized as how confidence of the community pharmacists to provide how successful current practice/ pharmaceutical care-based pharmacy practice were. Twelve items were constructed. For example; I could provide patients with health promotion by appropriate health behavior advice. Measures for self-efficacy variables are comprised of the following items:

***Confidence was measured by asking**, "what is the level of your confidence to provide pharmaceutical care in each activity?" using the five -point Likert scale, ranking from extremely disagree (1) to extremely agree (5).*

1. Asking about history of illness based on academic criteria before dispensing is not difficult for me.
2. Decision to select appropriate medicines for common illness patients is not difficult for me.
3. While the patient doesn't have any time, I can induce them to be concerned about

the importance and compliance to my advice.

4. I can advise patients to improve their health behavior.

5. I am not attempting to explain about methods to take medicines in case the patients don't understand or believe me.

6. I don't have any confidence to ask patients about their drug compliance or not in case they used to take these medicines.

7. It is difficult for me to ask patients about drug interaction, because it is based on my knowledge and experience.

8. It is beyond my capability to take notes about patients' medication history or adverse drug reaction even if I try to do it.

9. I am ready to change the medication plan in order to solve drug use problems.

10. I can do referral processes in case of severe symptoms that are out of my responsibility and my concern.

11. I can learn and understand about pharmaceutical care activities.

12. Even it is new and very difficult for me to provide pharmaceutical care activities, I think I can do so.

Intention: According to the intention variable, it was either dependent or independent variable. Similarly to dependent variable, the intention in this part would be operationalized as same as the intention in dependent variable which was prior mentioned.

Knowledge: Knowledge was operationalized as the pharmacists perspectives concerning their knowledge, related to the activities of pharmaceutical

care - based pharmacy practice. Measures for knowledge variables were comprised of the following items:

Knowledge was measured by asking, *"Please evaluate yourself about the degree of knowledge in providing pharmaceutical care activities", using the seven-point Likert scale, ranking from strongly having no degree of knowledge (1) to strongly having high degree of knowledge*

1. Knowledge about asking about history of illness and evaluate patients' health status to confirm their disease before prescribing.

2. Knowledge about adverse drug reaction and drug interaction.

3. Knowledge about selecting appropriate medicines.

4. Knowledge to classify the degree of severity of disease.

5. Knowledge for conducting the referral process.

6. Knowledge about pharmacist-patient communication technique.

7. Knowledge about health promotion and consultation to reduce health risk behavior.

Empathy: Items of pharmacist empathy were operationalized as the pharmacists' opinions concerning their patients related to the empathy component, such as 1). My patients feel better when I understand their feelings. 2). I try to understand what is going on in my patients' minds by paying attention to their non verbal cues and body language. Measures for empathy variables were comprised of the following items:

Empathy was measured by asking, *"Please give your opinion about empathy in patients", using the seven- point Likert scale, ranking from strongly agree (7) to strongly disagree (1).*

1. In making a good relationship with patients, I have to understand their mental status and their mind.

2. I try to understand what is going on in my patients' minds by paying attention to their non verbal cues and body language.

3. I believe that sympathy is a key factor for providing pharmaceutical care activities.

4. Empathy is an important skill to indicate the success of working as a pharmacist.

5. Understanding patients' mind, making me concerned with patients' right to participate in the treatment process.

6. Patients feel better when I understand their mind.

7. The patients 'illness can be treated with medication, so the relationship between pharmacists and patients is not necessary.

8. My understanding about patients' history of illness is not affected by the efficiency of treatment.

9. It is not necessary to be concerned about patients' mental state while I do the interviewing or ask about their illness.

10. I try to ignore making relationships with patients.

Professionalism: Items of professional commitment were operationalized as the pharmacists' opinions about component professionalism, such as 1) If I could do it over again. I would choose the same profession. 2).I definitely want a career in pharmacy. Measures for professionalisms variable were comprised of the following items:

Professionalism was measured by asking, *"Please give your opinion about professionalism", using the seven- point Likert scale, ranking from strongly agree to (7) to strongly disagree (1)*

1. If I study in other faculties and can earn the same salary compared to a pharmacists' job, I would prefer to study in other sciences.

2. I definitely want a career in pharmacy.

3. If I could do it over again, I would choose the same profession.

4. If I have more money and it is not necessary to work, I still need to work as a pharmacist.

5. I do not think about leaving the pharmacist's jobs.

6. I think that a pharmacist is my ideal job.

7. I feel disappointed to study pharmaceutical sciences.

Note: Reliability of all of the items for each variable will be tested using Cronbach's alpha.

ii) ***Predisposing factors***

Individual data including age, gender, year graduated, degree, practice pattern (part-time or fulltime), and owner status were collected.

The demographic variable was assessed by asking respondents which included two parts, the first part was in the cover letter to confirm the legible case meets criteria, and the second part was comprised of the individual data and some questions relating to external factors such as the location of pharmacy, and setting types.

b) External Factors: Barriers were constructed based on the focus group and pilot interview which included the following:

i) Economic data including price competition, setting type (chain, independence), location, number of customers / day, number of prescriptions /month.

ii) Social interaction data including participation in continuing education (CE), drug store development project, and applicants of community pharmacy accreditation, .

iii) Environmental factor including pharmacist's assistants, workload, utilizing of computer in dispensing/accounting, availability of patient's time.

iv) Health care system: Perspective toward the government policy regarding 30 baht universal coverage such as the perception of patients' figure decreases the results from the 30 baht policy. Perspective toward the absence of government enforcement to regulate all community pharmacists practicing in any drug stores at least 3 hours throughout the country, perception of physicians in pharmacy practice.

v) Professionals bodies: Perception of supports (continuing education or in service training related to pharmaceutical care, program used in patients

medication record) from pharmacy professionals bodies including the Community Pharmacy Association, The Pharmacy Council, and University.

The external data was measured by influencing factors, namely barriers toward pharmaceutical care in Thai context which were operationalized as the pharmacists' opinions about the factors influencing their practice. Measures for the external factors were the following items.

Variable *barriers were measured by asking* *pharmacists to evaluate the degree of these obstacles influencing them to provide pharmaceutical care activities with the five point response scale anchored by extremely disagree (1) to extremely agree (5)*

Influencing barriers to provide pharmaceutical care activities

1. The situation of price competition makes me decrease the drug price. *(Economic data)*

2. I have to work hard, so I can not provide pharmaceutical care activities. *(Environmental factor)*

3. The patients' limitation of time. *(Environmental factor)*

4. The doctors are not concerned with referral system. *(Health care system)*

5. The reduction of number of patients because of the 30 Baht project. *(Health care system)*

6. The lacking of any instruments such as the program for recording pharmaceutical care activities. *(Professional bodies)*

7. The law enforcement about responsibility of pharmacists to work at community pharmacy. *(Health care system)*

In addition, demographic data of number 4, 5, 6 ,and 8 in questionnaire part VI of predisposing data that represented economic data were added. Also, participation in the academic conference and project conducted by your professional organization of words 11,12 were added to represent the social interaction data. Moreover, a number of pharmacists and assistants in the same working period of respondent of number 9, 10 in questionnaire part VI were also added to an environmental factor.

Data collection

The mail questionnaires were sent to the total eligible cases of 1070 community pharmacists nationwide who are the members of the Community Pharmacy Association (Thailand) (CPA). Questionnaires with cover letters and stamped return address envelopes were sent. Reminder post-cards were sent to follow up ten days later. Receipts were followed up after the first weeks of the surveys. To enhance the response rate, four weeks later, direct telephone contacts were performed to follow up non respondents, and questionnaires were mailed second time based on subjects' requests.

Data analysis

For data analysis of this mail survey, with regard to the specific research question of this study, the data was analyzed in the following way;

Results from the focus group revealed the extent of pharmaceutical care-based pharmacy practice among community pharmacist in Thailand including activities and items as shown in table II.

To determine the degree of pharmaceutical care-based pharmacy practice among community pharmacists, the total numbers of patients that pharmacists provided pharmaceutical care for each activity reflected the degree of pharmaceutical care-based pharmacy practice. Scores in a range of 0 – 10 were accounted.

The questions represented dependent variables of how many of their last ten patients for whom these activities had been provided. The pharmaceutical care-based pharmacy practice was a sum of all twenty two items and ranged from 0 to 220.

Regarding research question II, 'what are the factors affecting this Pharmaceutical care- based Pharmacy practice?', data were analyzed to identify the factors influencing the intention of community pharmacists to provide pharmaceutical care- based pharmacy practice and to identify the factors influencing community pharmacists to provide their current pharmaceutical care- based pharmacy practice. The analyses were performed based on hypothesis I (H1) and the hypothesis II (H2)

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 practice.

Regarding the conceptual framework, the intention of community pharmacists toward pharmaceutical care- based pharmacy practice provision was a

dependent variable and behavioral social cognitive factors of attitude, self efficacy, knowledge, professionalism and empathy were the independent variables . Therefore, they could be the factors influencing the intention to provide pharmaceutical care-based pharmacy practice. The influencing factors toward intention were the predisposing factors including such as age, gender, year graduated and external factors and others. For example, price competition and patient's time were also analyzed as independent variables to predict intention to provide pharmaceutical care-based pharmacy practice. Multiple regression analysis was performed to investigate the association among these variables and intentions.

H2: Attitude, self- efficacy, knowledge, empathy, professionalisms, predisposing factors and external factors would be associated with the current practice of community pharmacists to provide pharmaceutical care- based pharmacy practice.

From the conceptual framework, behavioral social cognitive factors of attitude, self efficacy, knowledge, professionalism, and empathy were directly influencing the intentions. Therefore they were independent variables to predict pharmaceutical care- based pharmacy practice. Multiple regression analysis was performed to investigate these relationships. The other variables were the predisposing factors including age, gender, year graduated and external factors. Barriers including price competition and patient's time were also analyzed as independent variables to predict the current pharmaceutical care- based pharmacy practice.

In addition, the relationship between intention and the current practice of community pharmacists to provide pharmaceutical care- based pharmacy practice were investigated based on hypothesis III (H3) .

H3: Intention would have association with the current practice of community pharmacists to provide pharmaceutical care- based pharmacy practice.

This relationship was investigated by using the correlation analysis. The degree of association between intention and the current practice of community pharmacists to provide pharmaceutical care- based pharmacy practice were determined by the correlation coefficients.

However, dummy variables might be used for some qualitative or discrete variables such as gender number of assistants, education in the regression analysis, so that the association among these variables with intention and practice could be investigated.

Considerably, the steps of data analysis were as the following;

- Univariate analysis: mean, SD, and percentage were used in general data of demographic and other variables in descriptive part of result.
- Bivariate analysis included the Pearson correlation analysis was used to determine the relationship of each general variable to the behavioral variables and to the practice. ANOVA and T-test analyses were used to determine each general variable to the behavioral intention and the practice.
- Multiple regression analysis was employed to assess factors influencing any variable determinants (e.g. attitude, self- efficacy, knowledge) and external factors of the intention and the current practice toward the pharmaceutical

factors of the intention and the current practice toward the pharmaceutical care-based pharmacy practice.(Dummy variables would be used in qualitative variables)

The data were analyzed by using the statistic package program SPSS for window version 11. All statistic tests were set at the level of significance of 0.5

Reliability analysis was assessed for the internal consistency of the variables including attitude, self efficacy, intention, knowledge, professionalism, and empathy based upon Cronbach's alpha coefficient.