

CHAPTER III METHODOLOGY

This chapter involves with the research design, operationalization of concept, development of survey instrument, target population and sampling, data-collection method, unit of analysis and data analysis.

Research design

This study was designed as a survey research using self-administered mailed survey questionnaires as the research instrument.

Operationalization of concept

Two kinds of hospital pharmacy supportive personnel assisted pharmacists in pharmacy practice of hospitals under the Provincial Hospital Division, Ministry of Public Health. First, trained pharmacy supportive personnel (e.g. pharmacy technician and pharmacy assistant) graduated from the training program taught by the Ministry of Public Health since 1975. The pharmacy supportive personnel training program by the Ministry of Public Health has gradually been revised and now is under the name "Certificate in Public Health (Pharmacy Technique)" used for training "Pharmacy Technicians" instead of "Pharmacy Assistants." Another kind of hospital pharmacy supportive personnel was untrained or on-the-job trained by hospital pharmacists.

Activities performed by hospital pharmacy supportive personnel were tasks using technical knowledge or not need professional judgment immediately, for examples, labeling, counting drug pills for prescriptions, and others including some documentary jobs such as invoice processing, inventory checking, etc.

Pharmacists' attitude on the role of hospital pharmacy supportive personnel was measured by comparing the number of actual and expected roles of hospital pharmacy supportive personnel from the opinion of hospital pharmacists. The difference would represent the need or not need of pharmacists for expansion and extension the role of hospital pharmacy. The hypothesis of this study was the number of the expected roles would be more than the number of the actual roles. The hypothesis, in turn, expressed the need of pharmacists for expansion and extension the role of hospital pharmacy.

Development of survey instrument

1. Survey Questionnaires.

Three booklets of self-administered mailed survey questionnaire were developed: one for the head of hospital pharmacy department; one for hospital pharmacists, and the other for pharmacy technicians. The cover of each booklet had different color for different groups of respondents but constant detail: the front consisted of the name of the questionnaire and the researcher; the back cover consisted of the returned address with postage stamped. Contents of the three sets of the questionnaires were as following:

- 1.1. for the head of hospital pharmacy departments (green cover) and for the hospital pharmacist (yellow cover)

Part I - general information of respondents

- current pharmacy personnel manpower of the hospital pharmacy department (for the director of hospital pharmacy department only)

Part II actual and expected types of hospital pharmacy personnel performing each activity of each working unit adopted from the job's list for hospital pharmacy department from the Provincial Hospital Division, Ministry of Public Health (Subcommittee on study for pharmacist requirement in government sectors and the Provincial Hospital Division, Ministry of Public Health, 1993), and the number of each type of personnel responsible for each working unit.

note: for each activity, the respondents could check for more than one type of hospital pharmacy personnel who performed or expected to perform that activity.

- 1.2. for the hospital pharmacy technicians (pink cover)

Part I general information of respondents

Part II activities that were performed and could be performed by the respondents for each working unit adopted from the job's list for hospital pharmacy department from the Provincial Hospital Division, Ministry of Public Health (Subcommittee on study for pharmacist requirement in government sectors and the Provincial Hospital Division, Ministry of Public Health, 1993), and the number of pharmacy technicians for each working unit.

In general, there were 10 hospital pharmacy working units in most of public provincial hospitals. These working units were as following:

1. outpatient unit.
2. inpatient unit.
3. general (non-sterile) production unit.
4. sterile production unit.
5. aseptic dispensary unit (including total parenteral nutrition [TPN], intravenous [i.v.] admixture, and cytotoxic drug preparation and dispensing for individual patient).
6. quality control unit.
7. inventory management and purchasing unit.
8. drug information service unit.
9. community service unit (for the small general hospitals located in the remote districts apart from the Muang districts).
10. others unit (including general administration and student training jobs).

2. Pilot Study.

A study on the roles and problems of hospital pharmacy supportive personnel using a packet of self-administered mailed survey questionnaire was conducted with 39 head of pharmacy departments of hospitals under the government and the State Enterprises (รัฐวิสาหกิจ) in Bangkok and vicinity as following:

- 18 hospitals under the Ministry of Public Health (except hospitals under the Provincial Hospital Division, Ministry of Public Health that included in the major study);
- 8 hospitals under the Ministry of Interior;
- 4 hospitals under the Ministry of Defence;
- 3 hospitals under the Ministry of University Affair
- 6 hospitals under the other Ministry and State enterprise.

Twenty usable responses from 39 mailed questionnaires were returned and accounted for 51.28%. The result from the pilot study was used for improving the details of the packet of questionnaire for the head of hospital pharmacy departments and pharmacists in the major study.

For the hospital pharmacy technician, the questionnaire was pretested with ten hospital pharmacy technicians (about 10% of the sample size of the major study), 5 from Children's Hospital and 5 from Lerdsin General Hospital under the Department of Medical Services, Ministry of Public Health that located in Bangkok, to improve the detail of the questionnaire before using in the major study.

The details of the questionnaires for pharmacists used in the major study were in Appendix A and for pharmacy technicians were in Appendix B.

Target Population and Sampling

1. Target Population.

All hospital pharmacists, including the head of pharmacy departments, and all hospital pharmacy technicians working in pharmacy department of hospitals under the Provincial Hospital Division, Ministry of Public Health were the population subjects of this study. All hospitals were divided into 12 provincial health sectors according to the Ministry of Public Health. Based on the region of each hospital settings, and number of beds, hospitals under the Provincial Hospital Division, Ministry of Public Health were classified into 3 types as in Table 3.1.

Table 3.1. Types, sizes, and number of hospitals under the Provincial Hospital Division, Ministry of Public Health (January 1996)

Type of hospitals	Size (beds)	number of the hospitals
1. Regional	650-1,000	17
2. General	250-650	73
3. Community	120	2
total		92

2. Sampling.

There were 755 hospital pharmacists, including the head of pharmacy departments and the pharmacists, working in all 92 hospitals (in January 1996). To be able to cover wide range of working experience in hospital pharmacy, all of the 775 pharmacists were the selected subjects for this study.

While all pharmacists in every hospital were included as the studied subjects, only 97 pharmacy technicians were selected by clustered random sampling technique. One hospital was selected from each of 12 provincial health sectors. Then, every pharmacy technician in the selected hospitals was included as the studied sample.

Data-Collection Method

1. The survey mailing packet consisted of: (1) a cover letter issued by the director of the Provincial Hospital Division, Ministry of Public Health; (2) a booklet of questionnaires for the head of pharmacy department; (3) a number of questionnaire booklets enough for every hospital pharmacist; (4) the response verifying postcard inserted in each questionnaire booklet for the return checking; and (5) a number of questionnaire booklets enough for every hospital pharmacy technician (only for 12 selected hospitals). The questionnaire packets were mailed directly to each of the 92 hospital directors.
2. Three weeks after the first mailing, the follow-up letter was mailed to each hospital directors.
3. Two weeks after the follow-up letter, the duplicate packet of the survey questionnaires for nonrespondents were sent again.
4. The second follow-up letter was sent three-week after the mailing of the second packet.

The period of data-collection was approximately 3 months (mid-December 1995 to mid-March 1996).

Unit of Analysis

The individual hospital pharmacists and pharmacy technicians were the unit of analysis for this study.

Data Analysis

The SPSS/PC⁺ release 6.0 were used for data analysis as following:

1. Data from Pharmacist Respondents.

- 1.1. The pharmacists' attitude on the actual and the expected roles of hospital pharmacy personnel (pharmacists, pharmacy technicians, and pharmacy employees) were compared by using paired T-test.
 - "actual roles" were the number of activities the hospital pharmacy personnel performed currently at that time.
 - "expected roles" were the number of activities the hospital pharmacy personnel were expected to performed from pharmacists' perspective (not from any standards or any formal specifications).

Each activity of each working unit was classified as a professional task or a technical task as shown in Appendix C. The actual roles and the expected roles were compared for technical tasks and professional tasks separately. The examples of the actual and the expected roles tallying were explained in Appendix D.

1.2. The actual and the expected numbers of hospital pharmacy personnel (pharmacists, pharmacy technicians, and pharmacy employees) working in the pharmacy departments were compared by using paired T-test.

2. Data from Pharmacy Technician Respondents.

2.1. The actual and the competent roles of pharmacy technicians were compared by using paired T-test.

- “actual roles” were the number of activities the pharmacy technicians were assigned to do.
- “competent roles” were the number of activities the pharmacy technicians thought they could do because they were trained.

Each activity of each working unit was classified as a professional task or a technical task as shown in Appendix C. The actual roles and the competent roles were compared for technical tasks and professional tasks separately. The actual roles and the expected roles were compared for technical tasks and professional tasks separately. The examples of the actual and the competent roles tallying were explained in Appendix D.

2.2. The actual and the expected numbers of pharmacy technicians working in the pharmacy departments were compared by using paired T-test.