CHAPTER IV

RESEARCH METHODOLOGY

This chapter deals with the study sample, the selection of the sample and outcome measurement.

Sample specification

4.1 Target Population

The target population is the population to which the investigator want to apply the results of the study. In this study, the target population is decided to include the elderly who lives in Thamprakorn Home care for the elderly.

4.2 Population Sampled

The population sampled is the population selected from the target population for studying and making conclusion. The population sampled in this study will include all the elderly who lives in Thamprakorn Home for the elderly. The elderly in this home care would fit to the following criteria.

4.2.1 Inclusion criteria

(a) Age at least 60 years old.
(b) Stay at Thamprakorn Home care for the elderly.
(c) Willing to answer the questionnaire

4.2.2 Exclusion Criteria

(a) The elderly with problems in communication eg. aphasia or severe hearing loss.

Sample Size

The number of study units must be sufficient to make the result of study reliable. It involves greater reliability, and increase the power of statistical test. From pilot studied of thirty elderly people living in Thamprakorn home, Chiangmai Province, 19 elderly (64.5 %) had functional disability. The estimate sample size is calculated from this formula.

$$n = Z_\alpha^2 \frac{pq}{\Delta^2}$$

Z_α = The standard normal deviate corresponding to the tail probability of α = 1.96

p = proportion of functional disability.

q = 1-p

A^2 = Acceptable error (normally range from 0 - 1).

$Z^2 = (1.96)^2 = 3.8416$

p = 0.65 (from pilot study)

q = 1- 0.65 = 0.35

$$\Delta^2 = (0.08)^2 = 0.0036$$

$$n = \frac{(3.8416)(0.65)(0.35)}{(0.0036)} = 136$$

The sample in the study needs at least 136.

Outcome measurement

1. Operational definition

(a) <u>Disability</u> :The restriction in a person's ability to perform function, to live independently and goes about their daily lives.

(b) <u>Functional disability</u> : The restriction in ability to perform an individual's ability to do activities of daily living (ADL) including basic functional activities (BADL) and instrumental activities (IADL), which are recognized as essential components of everyday life, independently and go about their daily lives.

(c) <u>Categorize action of the severity of functional disability</u> (Williams, 1984)

1. <u>Independence</u>: Independence in a particular activity means that there is no need for physical assistance or supervision from another person. Someone may be independent even though they need assisted device to perform an activity.

2. <u>Need supervision</u> : Another person is involved when the individual needs supervision (someone standing by to provide reassurance, verbal cues, or instruction) or perform the activities with difficulty.

3. <u>Need assistance</u>: Someone physically aiding the individual in performing an activity while that individual is doing part of activity.

4. <u>Dependence</u> : Someone must do the activity

essentially completely without help from the individual.

The Instrument

In order to gather the answer and to fulfill the objective, a review of research literature was made to identify the functional assessment instrument. There were many instruments such as Comprehensive Older Person Evaluation (COPE), Multi Level Assessment Instrument (MAI), Functional Life Scale (FLS), Bathel Index Scoring, Modify Bathel Index Score, Analysis of Activities of Daily Living, Health accounting functional assessment of the long-term patient, PULSES Profile, Abbreviate Mental Test, Short Portable Mental Status Questionnaire, Depression screen, Geriatric Depression Scale, Social Health Battery, etc. These functional assessments are available. Making it be most useful for this study, before deciding to use any functional assessment, it is important to examine its characteristics carefully in order to determine if it is suitable for these elderly and important function that really need. A tool that measure only BADL is limited in its use in the home care setting, where IADL becomes an essential part of treatment. A tool feasibility is dependent on how it is administered and how many activities are measured. Finally, it is important to consider a precision. The precision must be adequate to detect degree of change within the functional measured.

Thus, the reason that mention above, the instrument in this study was designed by investigator for the study to determine the proportion of functional disability and severity of disability. The instrument was cover 4 areas; physical function, mental function, emotional

function and social function. Most physical functions
followed the operational definition of health on the concept
of functioning ; how far is the individual able to function
normally and to carry on his typical daily activities. It
is more useful to think of disability as a continuum ranging
from very severe to slight disability. This idea can be
applied both to individual disabilities and to the concept
of overall disability, which is the overall degree of
limitation. For assessment of **physical function** will be
applied to the instrument in this study and based on
analysis of activities of daily living (Linda, V.D.,
Katheryn, E.R,. 1989) and Modify Bathel index included 22
items related to personal care activities and daily
routines. Fifteen items covered the important basic
activity which necessary in self-maintenance activities.
These activities include mobility (bed mobility,
transferring from bed to chair, gait and other mobility) and
personal care includes; feeding, bathing, dressing upper and
lower part of body, grooming, toileting, bowel and
continence etc. Other seven items assessed in adaptive
task necessary in a dependent living environment such as
housekeeping laundry, cleaning, management of money,
medication and use of transportation. Each of activity has
four levels of severity; independence, need supervision,
need assistance and dependence. The severity will be
grouped into two main categories; dependent and independent.

For **mental function**, the abbreviate mental test
(AMT), is the popular cognitive function test. It was
validated in England, and will be used in this study. It has
10 questions and covers 5 domains, memory, recognition,
time, place and general knowledge. Thai version of this
test was already developed by investigator and consulted

expert for validity testing.

For **emotional function**, depression is the most common emotional problem in the elderly. Measuring depression will be used in the evaluation of emotional function. The Thai version of **geriatric depression scale** was developed and pre-tested in the elderly clinic at Chulalongkorn University.

For **social function**; the appropriate items that are compatible with Thai culture and social situation in home care will be selected from Social Health Battery (Rand Coperation, 1987) and use as the instrument for measuring social function.

Validity and reliability

Content validity

The instrument was constructed to cover all aspects of severity of disability in ADL (BADL and IADL), which can be use to classify the aging people with difference severity of disability that necessary and suitable for this home care. Before extensive survey of functional disability, testing of linguistic clarification is used to test whether the phrasing of the questions is clear. The questionnaire had been consulted by 5 experts; one geriatrician, one neurologist, one physiologist, two physical therapists for content validity. (Names of experts are in the appendix).

The content of scale can be examined for coverage of the major dimensions of disability in ADL. To assess face

validity, the interviewers will be asked the elderly whether he or she does or does not do.

Reliability

A valid scale will tend to have strong relations between the component items of the scale and the total score. In other words, it will have high internal consistency. Checking for reliability was done by examining the question constructed to check for the internal consistency with other questions. Then, the reliability of the questionnaire was calculated by using Cronbach's alpha coefficient (Cronbatch, Lee J., 1970) the formula as shown following;

$$R = \frac{k}{k-1} \times \frac{(1-S_i^2)}{S_t^2}$$

= coefficient of reliability of the questionnaire.
k = the number of the question in the questionnaire.
Si = variance of each item in the questionnaire.
St = variance of all items in the questionnaire
The result of the reliability of this questionnaire was 0.88.
The internal consistency coefficient of .85 or higher is commonly taken as acceptable level.

Training the interviewers

Three of the forth year students of physical therapy department were trained to interview. The training covered the purpose of the study, the contents of the instrument,

and the quality of the data collection. The interviewer
become familiar with the questionnaire by practicing in the
real setting during the pilot study. The investigator was
incharge of the supervision.

Data collection

Data were collected by interviewing and using the
questionnaires during October -November 1992. All 161
elderly were interviewed. Only one elderly was excluded
from the study because of deafness.

Data processing

Data were entered into the coding forms and the
verification was done, using dbaseIII plus. Verification of
the data in diskettes with the coding also operated.

Since the questionnaires and survey form have a
lot of data, the instrument was checked in order to correct
the data immediately.

Analysis

This instrument included 22 items. Fifteen items
belong to BADL and seven to IADL. Each activity has four
levels of severity of disability ; independent, need
supervision, need assistance and dependent.

The proportion of functional disability is
described by the amount of help received in ADL. By grouping
the severity of disability into two categories; independence
and dependence. Dependence includes need supervision, need

assistance and dependent. Further, these subjects will be grouped and described according to the range of the number of limitation in each item for represent the proportion of limitation.

Before comparison between dependent and independent variables will be done, using t-test and chi square test when appropriated. The logistic regression analysis is used to estimate the relative importance of each independent variable.

Ethical considerations

Because this study will be done by interviewing the elderly in Thamprakorn home without any intervention, we still cannot foresee any ethical problems.