

CHAPTER IV

RESEARCH METHODOLOGY

4.1 Introduction

This chapter describes the research methodology, including quantitative and qualitative methods. It details the methodologies used to elicit the findings of this study and the answers to the research question, i.e., development of research instrumentation, and data collection and analysis.

4.2 Research Design

To derive appropriate conclusions from the research question, and to develop a model to strengthen social support for the elderly, this study used an exploratory and cross-sectional descriptive design, to elicit evidence to inform the community empowerment process.

A cross-sectional descriptive study implies observation at a selected single point of time (Baker, 1999). A cross-sectional study can accomplish the aim of exploration or description. It can also be used for explanatory studies, since background information and retrospective data can be related to current statuses, and current statuses to expectations and aspirations (Baker, 1999). A key advantage of across-sectional study is that it is not threatened by testing or historical effects, because the subjects (the elderly) are tested only once, and all subjects are tested at the same time. Portney & Watkins (1993) stated that a foundation of descriptive data

is needed to generate developmental theories and to establish the most important variables for study treatment effects. Cross-sectional data are most useful when the primary interest in a developmental study is description of typical individuals at various life stages or description of existing group(s) in contemporary society.

However, to achieve the objectives of this study, to study social support among the elderly, which are social and relatively sensitive issues, to explore, determine, describe and quantify the gaps and un-met needs for social support among the elderly and their social networks, both quantitative and qualitative methods are required. Quantitative methods are linked to a logical positivist philosophy, in which human experience is reduced to a limited number of logical and controlled relationships between specific measurable variables. The rationale for the quantitative approach is defined in advance, based on a hypothesis that guides the methods of data collection and the design of the study. Variables are manipulated and assigned numerical values, independent of the historical, cultural, or social contexts within which action takes place and is observed. On the other hand, qualitative methods seek to describe the complex nature of humans and how individuals perceive their own experience within specific social contexts. A qualitative methodology uses the subjects' own words and narrative summaries of observable behavior to express information, rather than numbers. The qualitative approach emphasizes an understanding of human experience, exploring the nature of people's transactions with themselves, others, and their surroundings. Questions that lend themselves to qualitative inquiry are generally broad, seeking to understand why something occurs,

what certain experiences mean to a patient or client, or how the dynamics of an experience influence subsequent behavior and decisions.

Portney & Watkins (1993) observed that quantitative and qualitative methods can be combined within one study, to measure certain components of behavior and to see how such measurement relates to the nature of experience.

4.3 Study Community and Study Population

The study population, the elderly and their social network, is located in Khon Kaen Province, Thailand. However, because this study intended to develop a model for strengthening social support among the elderly, quantitative and qualitative methodologies were employed to identify the target population, sample size, for the process of data collection. The process of identifying the target population was thus conducted in 2 parts, according to both quantitative and qualitative methods, and comprised 7 steps, respectively, as follows:

4.3.1 Quantitative methods

4.3.1.1 Define target population

The target study population was elderly persons (aged 60 years or more), who had lived in Khon Kaen Province for more than one year.

Eligibility Criteria

- **Inclusion criteria:** people aged 60 years or more, living in sample villages in Khon Kaen for more than 1 year, able to participate in this study, and who provided informed consent.

- **Exclusion criteria:** presence of an acute or current medical or psychiatric problem that might interfere with memory or judgment, and elderly who were not willing to join this study.

4.3.1.2 Select the sampling frame

Nassirpour (2005) observed that a sampling frame is a list of elements from which a sample may be drawn according to the study definition (people aged ≥ 60 years); thus, all of the elderly are the study target population. Therefore, the sampling frame consists of all elderly in all areas of Khon Kaen Province.

4.3.1.3 Determine if probability or non-probability sampling will be chosen

Khon Kaen Province is composed of 20 districts and 5 subdistricts. Under the supervision of Khon Kaen Provincial Health Office, Khon Kaen Province is divided into 4 cluster areas:

- a) The North (4 districts and 1 subdistrict; Khoa Suan Klang, Ubonratana, Kranual, Nam Pong, and Sam Sung)
- b) The Central (5 districts and 1 subdistrict; Muang, Ban Fang, Prayeun, Ban Phai, Manja Khiri, and Ban Had)
- c) The South (5 districts and 3 subdistricts; Wang Yai, Wang Noi, Phon, Chonnabot, Nong Song Hong, Puai Noi, Non Sila, Khok Pho Chai, and Nong Na Khum)
- d) The West (5 districts; Phu Pa Man, Si Chompu, Chum Pae, Phu Weing, and Nong Rua)

The details are shown in the Khon Kaen Map, below.

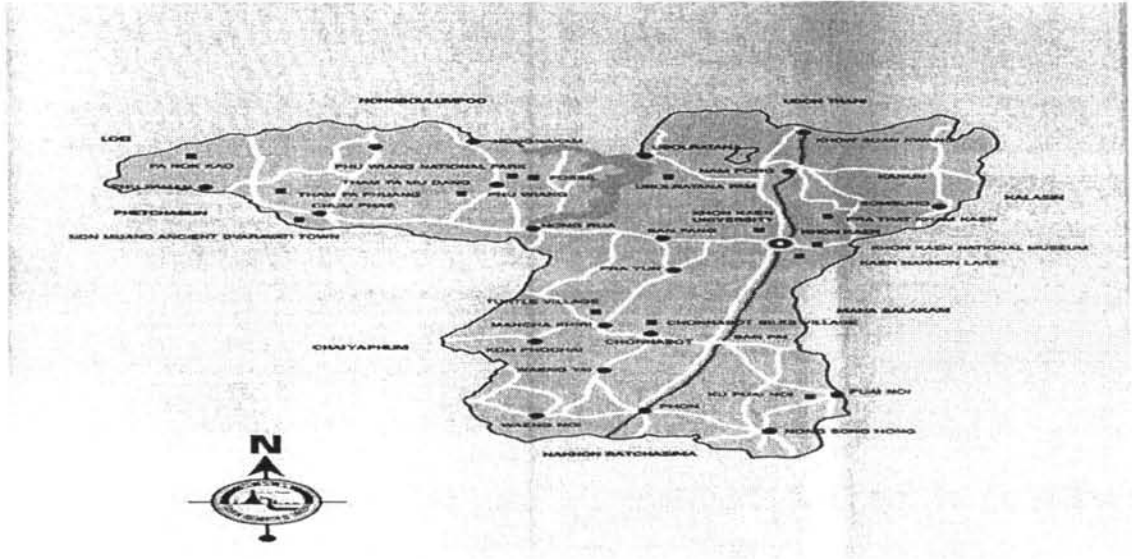


Figure 13: Map of Khon Kaen Province, Thailand

Source: Nassirpour, M. (2005). **Khon Kaen map**. Retrieved November 24, 2006, from <http://www.khonkaen.com/english/maps/prov600.asp>

This study used the framework of the geography of Khon Kaen Province and Khon Kaen Provincial Health Office supervision cluster areas. Therefore, the study used probability sampling, in the form of multi-stage cluster sampling, which divided the population into a large number of groups called clusters, and then conducted random sampling among each cluster, finally selecting all individuals within those clusters. Multi-stage cluster sampling permits convenience, economy, and efficiency while retaining the characteristics of a probability sample. It does not require a complete list of members in the target population, which greatly reduces sample preparation costs. The list of members is required only for those clusters used in the final stage (Australian Bureau of Statistics, 2005). Thus, this

technique was more appropriate for this study, since due to the number of subjects within each unit was very large.

4.3.1.4 Plan procedures for selecting sampling units

As mentioned above, Khon Kaen Province is divided into 4 clusters; multi-stage cluster sampling involves picking a sample from within each chosen cluster. This type of sampling requires at least two stages:

1. In the first stage, large groups or clusters are identified and selected. These clusters contain more population units than are needed for the final sample.
2. In the second stage, population units are selected from within the selected clusters (using any of the possible probability sampling methods) for a final sample. If more than two stages are used, the process of choosing population units within clusters continues until there is a final sample (Canada's National Statistical Agency, 2006).

Multi-stage random sampling process

- **Stage 1:** as mentioned earlier, following the multi-stage sampling technique, 4 clusters were selected (South, Central, West and North). Using random sampling methods, in which each member of a population has an equal chance of being included in the sample one sample district was selected from each cluster. (Canada's National Statistical Agency, 2006).

- **Stage 2:** for each district sample, a list of subdistricts was prepared for a sampling frame for the second stage, and one subdistrict was selected by simple random sampling.
- **Stage 3:** for each subdistrict sample, a list of villages was prepared for a sampling frame for the third stage, and two villages were selected by simple random sampling. The sampling frame is shown as figure 14.

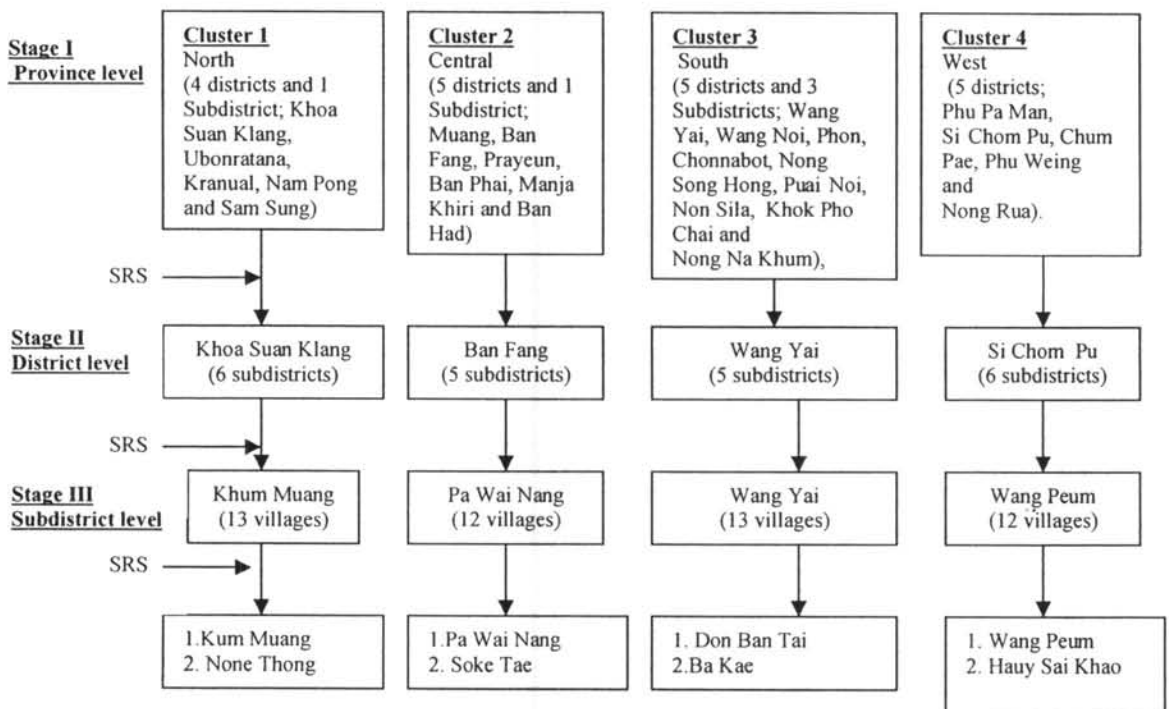


Figure 14: Sampling Frame of the Study

4.3.1.5 Determine sample size

This study aims to explore the level of social support among the elderly and its related factors, in order to generalize the findings for Khon Kaen Province. The previous study of Kuhirunyaratn (2004) found that perceived social support among Khon Kaen elderly means was 70.12 (SD 1.02). Thus, the sample for

this study was calculated using the WINPEPI (PEPI-for-Windows) program (Abramson, 2004). To estimate a mean (cluster sample):

Confidence level = 95%

Maximum acceptable difference = 0.15% of mean

Assumed mean = 70.12 (Kuhirunyaratn, 2004).

Assumed S.D. = 1.04

Size of population = 164,095 (Khon Kaen Provincial Health Office, 2006).

Design effect = 2 No. of clusters = 4

Therefore, sample size = 756 (4 clusters with 189 in each)

4.3.1 6 Select actual sampling units

As mentioned above in relation to sample-size calculation, all of the elderly in the sample rural and urban villages were recruited into the study. The details are illustrated in table 4.1.

Table 4.1: Distribution of the Elderly in the Sample Villages

Sample clusters	Sample villages	Elderly (aged \geq 60 years)
Cluster 1	Kum Muang	110
North	None Thong	78
Cluster 2	Pa Way Nang	126
Central	Soke Tae	74
Cluster 3	Don Ban Tai	103
South	Bong Kae	88
Cluster 4	Wang Peum	127
West	Hauy Sai Khao (rural)	69
	Total	775

Source: Khon Kaen Provincial Health Office. (2006). **Provincial information health system.**

Retrieved December 12, 2006, from <http://provis.kkpho.go.th/provis/main/index.php>

The sample calculation arrived at a figure of 775, while the total population was 756; therefore, this study used all of the elderly population in the sample areas.

4.3.1.7 Conduct field work

Recruitment of respondents

Selection of respondents for face-to-face interview questionnaires

- All elderly aged ≥ 60 years, living in the sample communities of Khon Kaen Province for > 1 year were recruited into this study.

4.3.2 Qualitative methods

To achieve the purpose of this study, the target population encompasses not only all of the elderly in the sample communities, but also the elderly- themselves, elderly's social network, such as family caregivers, friends, community leaders, and community health organization staff. The methodology for conducting the sample is as follows;

4.3.2.1 Define the target population: to answer the research question regarding the elderly and their social network perspectives, it is necessary to address the issue of social support for the elderly; thus, the target population was the elderly (aged ≥ 60 years), and the elderly social network, which including family caregivers, friends, community leaders, community health staff, and community staff.

4.3.2.2 Select the sampling frame: in the sample areas, all of the elderly and their social networks were included; thus, a list of the elderly, family

caregivers, elderly friends, community leaders, community health staff, and community staff were explored as a sampling frame. However, the lists of the elderly, family caregivers and the elderly friends constituted a large portion of population, so that a strategy of sampling was chosen.

4.3.2.3 Determine if probability or non-probability sampling will be chosen: the qualitative data used in this study aims to explore the questions arising from the quantitative data, and uses qualitative data to explore specific issues or aspects for which qualitative data collection is most appropriate. Therefore, the target populations are key individuals who are rich in information for the study; thus, non-probability sampling is chosen for the sample and consequently, purposive sampling was used.

4.3.2.4 Plan procedures for selecting sampling units: this study attempts to explore the enriched data from the elderly and the key persons in their social network, and therefore uses purposive sampling in each sample community.

4.3.2.5 Determine sample size: the qualitative data required assist the researcher understand the phenomenon of the elderly and their network and social support behavior, and the expression of their needs and problems. Therefore, the consistency of the data gathered from the responses of the elderly and their network are adequate indicators for the qualitative methodology using the study sample size. However, the variety of the elderly and their network (male-female, young-old elderly) is included.

4.3.2.6 Select actual sampling units: The target population is drawn from the community; the snowball technique is used to identify the elderly and their

network key informants. In-depth interviews will be arranged in the home of each key informant.

4.3.2.7 Conduct field work

Recruitment of respondents for in-depth interview

Inclusion criteria

The elderly and their network (family caregivers, friends of the elderly, community leaders, community health staff, and community staff) will be selected purposively in the sample community.

Inclusion criteria:

Elderly: both male and female, age group 60-69 or more

Family caregivers: both male and female, who have lived with the elderly for > 1 year, in the sample village

Elderly friends: both male and female, who have been friends with the elderly for > 1 year

Community leaders: who have worked for the community for > 1 year

Community health workers: who have worked for the health of the elderly in the sample community for > 1 year

Community workers: who have worked for the health of the elderly in the sample community for > 1 year.

Exclusion criteria: all respondents presenting with an acute or current medical or psychiatric problem that might interfere with memory or judgment, and persons unwilling to join this study

Conclusion

The study community and the study population for this study may be summarized according to figure 15, as follows;

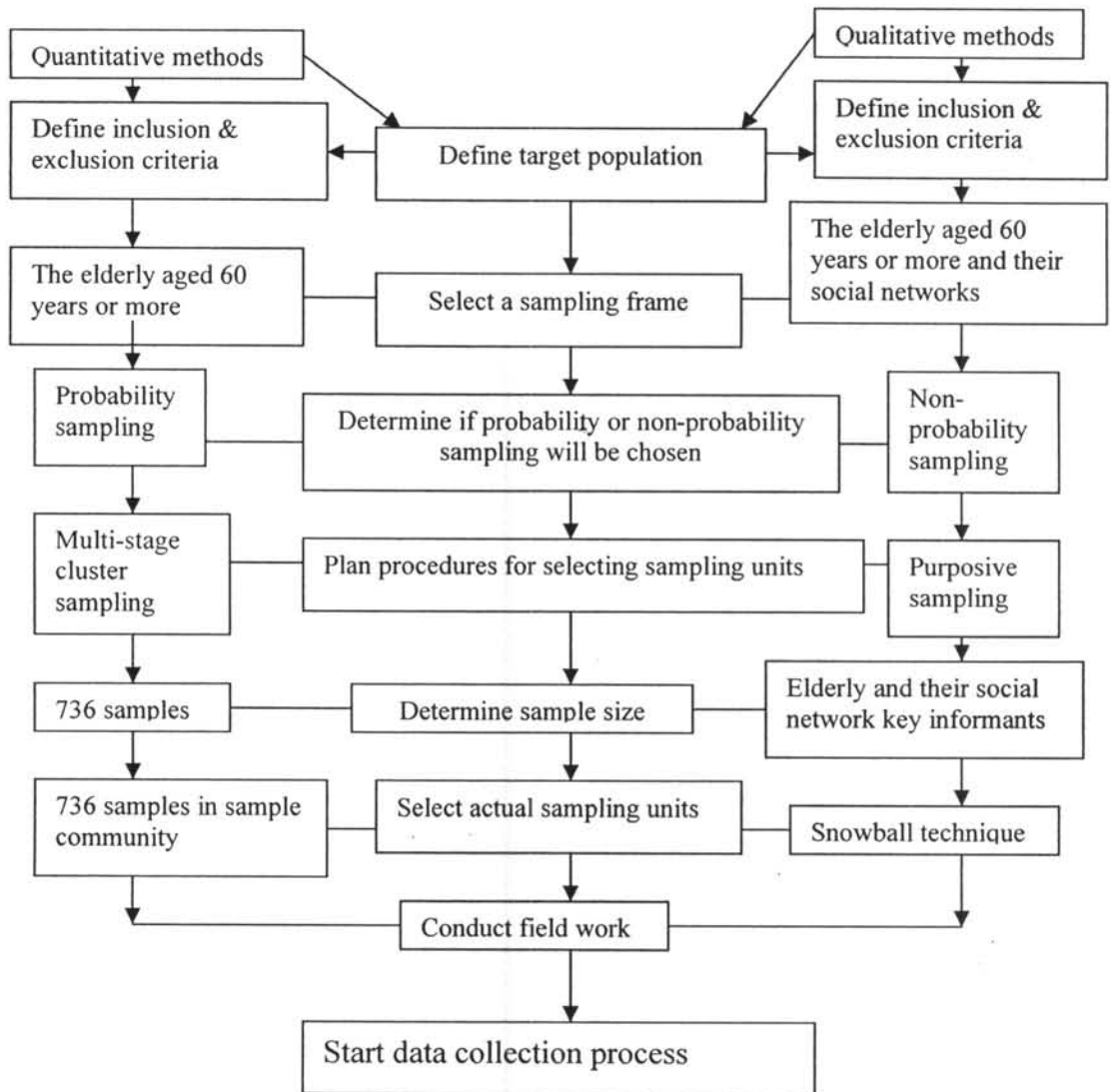


Figure 15: Plan of Process for Selecting Sample Units

4.4 Data collection procedure

This study used both quantitative and qualitative methods to gather the data. Quantitative methods used face-to-face interviews with a structured questionnaire, while qualitative methods used in-depth interview guidelines to explore the elderly and their social network, and perceived social support, social support activities, needs, and perspectives.

The data collection procedure was divided into 3 main processes: instrument development, training the interviewer for the quantitative method/preparing guidelines for the qualitative method, and conducting the actual data collection, as detailed below:

4.4.1 Quantitative methods; face-to-face interview with structured questionnaire

A **structured questionnaire** is one in which the questions asked are decided precisely in advance. When used as an interviewing method, the questions are asked exactly as they are written, in the same sequence, using the same style, for all interviews. Nonetheless, the structured questionnaire can sometimes be flexible enough to permit the interviewer to amend it for a specific context.

The main results of this study are derived from use of the structured questionnaire because the structured-questionnaire method can be used to study various aspects of social science research. The method is appropriate where the study aims to:

- Estimate the **prevalence of existing beliefs or attitudes** as a means of **confirming data** obtained with either unstructured interview or other qualitative methods.

- Find more information **to complement or follow up** a previous exploratory study. The purpose of this may be to check the validity of previously collected data or observations to enrich the overall results of a study.
- Compare responses in **subgroups of a large population**, such as attitudes, perceived social support, types of characteristics, etc.

4.4.1.1 Questionnaire Development Process

Questionnaire development for this study used four steps, as follows:

Step 1 designing the structured questionnaire

- **Determine questionnaire content**

The objective of this study was to explore the variables leading to development of the questions. Finally, the questionnaire was divided into 5 parts:

- 1) Socio-demographic characteristics
- (2) Social network characteristics
- (3) Social integration characteristics
- (4) Personal health characteristics
- (5) Perceived social support

- **Formulate the questions**

According to the questionnaire theme, questions were developed from the related literature and standard tools. The parts dealing with socio-demographics, social network, social integration, and personal health were developed by the researcher and the research team, while the part dealing with perceived social

support was adapted. The Personal Resource Questionnaire (PRQ) of Weinert & Brandt (1987) and the Adults Stress Test of Holmes & Rahe (1967) were used for the part dealing with personal health characteristics.

1) Personal Resource Questionnaire (PRQ 85)

The Personal Resource Questionnaire (PRQ) was developed in the late 1970's by Patricia Brandt and Clarann Weinert, who were doctoral students at the University of Washington. The measure was based on a synthesis of concepts with strong emphasis on the work of Robert Weiss. The five hypothesized underlying dimensions were:

- a. The indication that one is valued (Worth)
- b. That one is an integral part of a group (Social Integration)
- c. The provision for attachment/intimacy (Intimacy)
- d. The opportunity for nurturance (Nurturance)
- e. The availability of information emotional, and material help (Assistance)

This study adapted the part dealing with perceived social in the Personal Resource Questionnaire, Parts I and II. Part I aim to explore the elderlies' available personal resources, social support needs and perceived satisfaction with social support. PRQ part II consisted of 25 items based on the five dimensions of support. Each item response was scored on a 7-point Likert scale, with scores ranging from 5-75; higher scores indicated higher levels of perceived social support. Over the years of use the α reliability of Part 2 was demonstrated as around .90.

The PRQ85 had already been translated into Thai, and used to determine social support among elder clients at Nakhon SaWan Provincial Psychiatric Clinic, Thailand. PRQ85 Thai version was tested for validity by experts from Chiang Mai University (reliability: Cronbach's $\alpha = 0.87$). However, as a result of expert advice and the findings from the literature review, the questionnaire was adjusted somewhat: the contents underwent some changes for better understanding of the Northeastern elderly of Thailand, and the Likert's scale was decreased from 7 points to 3. A score of 3 meant high perceived support, 2 moderate, and 1 little support. The content validity was again tested by experts in Khon Kaen University and Cronbach's α using 3-point Likert was 0.73.

2) Adult Stress Test

This study sought to explore stress among the elderly by adapting Holmes & Rahe's (1967) adult stress test questionnaire. After questioning 7,000 people about the number of life events they experienced in 1 year, Holmes and Rahe concluded that people who scored highest on this questionnaire experienced the highest amount of physical illness in the year following the test, since major life changes can produce stress-induced illness. This tool had already been used in a Thai version, and it was easy to respond to when a trained interviewer asked about the important events of the elderly (including happiness and sadness) that had occurred in the previous 12 months. Then, the score was recorded with the event value for each. The scores for each column were added up, and the totals added to arrive at a grand total individual score. A total stress score ≥ 250 for the previous 12 months meant that the individual could be overstressed.

- **Sequence and arrange the questions**

All questions were sequenced and arranged according to parts 1-5. The order of the question was related to the consequent question, and to make sure that only the key questions were included in the study questionnaire.

- **Translate the questionnaire**

This study dealt with the Thai elderly, so that after it was completed, the questionnaire was translated into the Thai language.

Step 2 Pretest

Pretest procedure

The purpose of the pretest was to test the research questionnaire with the respondents drawn from the research team who will eventually be considered for the study interviews to predict how well the questionnaire will work during actual data collection. The pretest seeks to determine whether;

- (1) the right question are being asked to obtain the need information
- (2) the content or subject matter of each question is relevant to the respondent
and
- (3) the wording and procedures used in conducting the interview are adequate to ensure that valid and reliable results are obtained.

For this study, 30 structured questionnaires were conducted among the elderly in rural and urban community of Banphai District, Khon Kaen Province. Researcher and team evaluate the interview procedure; the interviewer team was carry on the normal introduction and question of an interview while researcher was acted as observer to make note on situations that occurs during the interview that indicate the

problems with the instrument or procedure. The problem was raised when the interview completed whilst the interviewee was interviewed in manner of understanding the question regarding standardization among the interviewer and interviewee.

Step 3 Expert review

Because of no instrument is perfect, it is generally useful to seek outside commentary on our approach. This study seeks expert review on assignment using structural interviewed to help us determine whether;

- 1) The questions being asked and the manner in which they are asked were adequate to answer the overall question posed in the evaluation
- 2) The intended interviewee group all have knowledge answer the question
- 3) The instrument is as well constructed as possible within state of the art confines

This study using 2 experts in the area of the elderly and one the expert in the area of social support which were provide a critique of the study questionnaire.

Step 4 Instrument redesign

The research team considers results of pretest and experts reviewed make appropriated changes to the questionnaire. Fortunately, changes were minors; this instrument can be used without further pretest.

4.4.1.2 Training interviewers

The interviews of this study were trained in the purpose of evaluation and the procedure for conducting the interview.

Thus, 10 Sirinthorn Public Health College students of Khon Kaen Province were trained as interviewers for 1 day. The training methods use various ways of training its interviewers and helping them maintain skills throughout the data collection period.

The training begins with the researcher reviewing the purpose of the study and how the interview adapts will fit into its overall objective. Then, the data collection procedures are covered in detail, using the interview manual. The trainers discuss the interviewee by clarify terms, discuss the questionnaire from question by question, including the needs for data, possible rephrasing to be used if a question is not understood by the interviewee, also how to record the answer and other matters they think could arise.

4.4.1.3 Conducting interview

Prior actual data collecting, process and related document were submitted to local administration of the sample areas. Formal approval were obtained for local administrations and strong coordination was made with community leader, community hospital, health center, sub district organization administration and Khon Kaen provincial health office in order to understanding the purpose of the study.

The fieldwork activities for the survey were beginning with the 10 trained interviewers. Two research assistants were employed for field managing and two local coordinators were employed in each district. The interviews were conducted in Isan language at the elderly resident, time used were 30-60 minute. Confidential and procedural issues were explained to the participant. All elderly in

sample village were interviewed, the time that spend for data collection in each village were 2-3days.

4.4.2 Qualitative methods; in-depth interview and in-depth interview guidelines

An in-depth interview is a qualitative research technique that allows person to person discussion. It can lead to increased insight into people's thoughts, feelings, and behavior on important issues. This type of interview is often unstructured and therefore permits the interviewer to encourage an informant (respondent) to talk at length about the topic of interest.

This study was applied the Steps in using in-depth interview of this study (Frechtling et al., 1997).

4.4.2.1 Prepare an Interview Guide for Each Category of Respondents

Frechtling et al. (1997) stated that a good guide uses general, non-directive questions or phases instead of direct questions that may end up in Yes or No answer. The task of investigators or teams of investigators involve reviewing the study topics to develop questions that will yield relevant responses. Therefore, in-depth interview guideline was developed as follow stage;

- a) Framing the Questions
- b) List the most important topics to be explored in the study.
- c) Identify relevant *subtopics* for each of the study topics
- d) Make a draft of possible questions that could be explored with respondents about these sub-topics.

- e) Check each question against the overall study questions and take out those that are not needed to answer one or more of the study questions.
- f) Check the questions again to ensure that they can help initiate discussion.
- g) Sequence of Topics

See in-depth interview guideline at appendix.

4.4.2.2 Pilot Testing

A pilot study will be conducted before the start of data collection. The purpose of pilot study is to test for cultural implications of using the research instrument such as evaluation clarity, readability and administration as well as to test at the outset for internal consistency of the instrument. The in depth interview guideline will be tested for an appropriate question and how much more information is needed

A pilot study is useful for assessing the adequacy of the plan for data collection and appropriateness of the research instruments and instructions and is expected to be useful in detecting possible problems that might occur during the data collection process (Malathum, 2001). The pilot test in group similar to target groups in term of study characteristics, thus, one village in Khon Kaen Province will be selected for the pilot study including elderly, family caregiver, the elderly close friends, community leaders and staff of community organization will be recruited.

The pilot study of in-depth interview procedure affords an opportunity for the researcher and the study team to evaluate the appropriateness of

the interview guides. It also enables interviewers to put into practice the skills they have learned before the actual interview. Problems relating to appropriateness, clarity, or ambiguity in the use of guide, as well as other related respondents and the study environment, can be discussed and improving the guideline questions.

4.4.2.3 Conduct the Actual Interviews

In-depth interview were conducted with the elderly, family care givers, the elderly close friends, community health staffs, and community staffs by researcher. The important instrument of this process is the research team which was researcher and two research assistants which one was note taker and one was the tape recorder. The questions of the in-depth interview (in depth interview guideline) arisen similar to the steps of structured questionnaire, accepted the question of this process contain only the opened-end questions regarding perspective, attitude and concern of the respondent on the social support issues.

The in-depth interview will be operated in the respondent house, or the place that the respondent familiar. Respondents will be asked permission to record and spend the time as 30-60 minutes. The interview will often take place during two or more visits due to the limited time of participant and the complex issues addressed.

4.5 Quality control of instrument

4.5.1 Questionnaire standardization

An interview is a piece of social interaction with one person asking another of questions and other person giving answer (Baker, 1999). Interview in a

survey, the major different between interviews for a job, for admission to college and for a survey is that the interviewer in a survey has nothing to offer to, or withhold from, the respondent. The interviewer needs to fully recall when consider how to make the request for an interview non-threatening and the experience of being interviewed as enjoyable as possible (Baker, 1999).

The important factor that affect to the quality of data in this study is interviewers. The sociologist once described the ideal interviewer as the person who could adapt the standardized questionnaire to un-standardized respondents. The important ability of the interviewer is to handle two way conversations without losing the central meaning of the survey in any of conditions (Baker, 1999).

The interviewers of this study were 10 of the second year Sirinthorn College of Public Health students, Khon Kaen Campus. All of them were Khon Kaen native which can be able to use the local language of Khon Kaen (Isan language). Prior data collection, all interviewers were enrolled how to become a good interviewer, face-to-face interview technique training program and standardized questionnaire of this study as mentioned on data collection process.

Moreover, the number of procedure (interview manual) will be established, including pre-coding forms. All instrument used will be trained for interviewers before start of data collection in order to better understanding definitions and interview technique. While data collection is in process, regular follow up and consultant with the research will be scheduled.

4.5.2 Content validity and reliability of the questionnaire

To maintain the quality of data collection, the content validity, reliability of the instruments (in Thai) will be assessed.

1) Content validity

Content validity means the extent to which the scope of a test is broad enough to encompass all aspects of the definition of what you're measuring--the definition contains the concept (Georgetown University, 2005). Content validity is usually established by content experts. This study, three experts such as social support specialist and expert in the elderly health were reviewed the contents of the questionnaire to ensure that it entire dimension of the construct that intend to measure and noting more as mentioned in the part of data collection process.

2) Reliability

Reliability is defined as the degree to which a procedure for measuring produces similar outcomes when it is repeated. If measuring procedure produces roughly similar results what it is repeated (consistency), we can then state that the measuring instrument reliable (Baker, 1999). A reliability coefficient is often the statistic of choice in determining the reliability of a test (AllPsych ONLINE, 2005).

This coefficient merely represents a correlation, which measures the intensity and direction of a relationship between two or more variables. Cronbach's α is the most common form of reliability coefficient. By convention, α should be .70 or higher to retain an item in a scale. However, some researchers allow a lenient cut-off of .60, while others insist on a stringent cut-off of .70 (NC State

University, 2005). This study, especially in part of perceived social support were assessed which α set as be .70 or higher for reliable decision. See reliability of this study as appendix

4.5.3 Triangulation

Triangulation is the attempt to increase reliability by reducing systematic (method) error, through a strategy in which the researcher employs multiple methods of measurement (ex., survey, observation, archival data). If the alternative methods do not share the same source of systematic error, examination of data from the alternative methods gives insight into how individual scores may be adjusted to come closer to reflecting true scores, thereby increasing reliability (NC State University, 2005). The use of both qualitative (face-to-face interview), observation and in depth interview is to triangulate the data obtained and enhance data quality.

The framework of this study data collection as figure 16 follows;

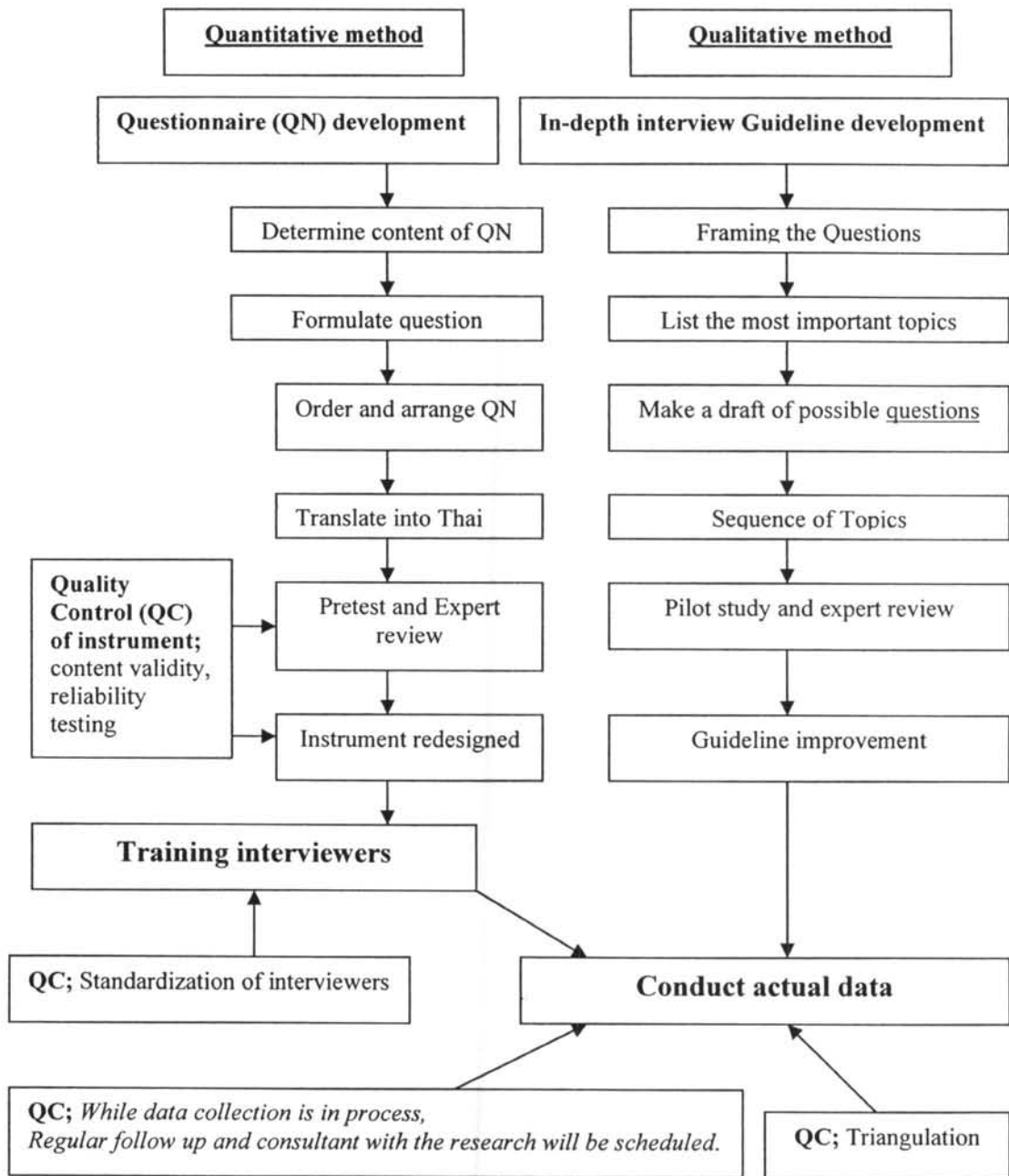


Figure 16: Data Collection Process of the Study

4.6 Variables

Variables are the building block of research questions. The term variable refers to a property that can differentiate members of a group or set. It represents a concept, or factor, that can have more than one value which can be denote a

measurable quantity such as height, age, blood group (Portney & Watkins, 1993). By definitions, the variables are characteristics that can vary, that is, their values are not constant. A factor becomes a variable by virtue of how it is used in the study.

This study is performed to examine the relationship among the variables. The purpose of this study tries to establish how one variable affects another. Therefore, all variables were classified according to how they are used in a study. An independent variable is manipulated by the researcher which sets its value by specifying how it will be used in the study while a dependent variable is one that is measured to determine its value. A change in a dependent variable is presumed to be caused by or associated with the value of the independent variable, thus, the dependent variable is a function of the independent variable. It is the outcome that this study wants to explain or predict. To achieve the purpose of this study, the independent variables are Socio-demographic characteristics, elderly Personal health characteristics, Social network characteristics, and Social network integrations. The dependent variable in this study is perceived social support.

4.7 Data analysis

There were 2 steps of data analysis:

4.7.1 Transcribe the entire interview

4.7.1.1 Structured questionnaire

The interview manual and coding form (as used in the data collection) were established for data double entry into the EPIINFO version 6. Data double entry is the procedure that two users enter the same set of questionnaire

by using the computer program checking consistency and accuracy of data from both users before started the data analysis.

4.7.1.2 In Depth Interview

Data analysis was begun with the field note-taking of the interviewers. As a first steps, all field data including notes, comments, and recordings are covered from the interview. This study plan for data analysis by hand, a way of the data analysis involves that following steps;

1) Categorize interview material into various sub topics.

This interview of in depth interview was fully transcribed. Based on the objective and conceptual framework, the researcher and 2 research assistants undertook preliminary analysis of the transcripts to construct a topics and subtopics. The topics and sub topics from research team were then be compared and reconciled. The indicators were developed an appropriate heading of the majors themes.

2) Label each category using appropriate headings

As these step, by using data sheet for the analysis which refers to a lists the major topics and sub topics of the interview guide in order to record responses in a logical manner) contained the following majors themes;

- (1) Personal data of information
- (2) The elderly as the people social support perceptions
- (3) The elderly social network perspective on social support for the elderly
- (4) Need and problems on social support interaction

For each of topic and sub topic mentioned, response of each information were recorded from the cut and pasted material assembled from transcriptions, interviewer's notes, comments and observations. The data sheet from the individual interviews can be then be combined in the overall analysis

3) Describe and interpret major findings

4.7.2 Analyze the quantitative and qualitative data

4.7.2.1 Statistical Analysis

The statistical analysis for quantitative data used in this study was as follow;

- 1) Descriptive statistics as frequency distribution, number, percentage, range, mean and standard deviation was analyzed to draw socio demographic characteristics, personal health characteristics, social network characteristics, social integrations characteristics, and outcome variable: level of perceived social support.
- 2) Bivariate analysis aims to determine the association between independent factors (socio demographic characteristics, personal health characteristics, social network characteristics, social integrations characteristics) between dependent factors (perceived social support). The bivariate analysis was conducted

utilizing chi square tests for categorical variables and independent sample t-test and ANOVA for continuous variables by comparing age group, gender, and place of respondents.

- 3) Multivariable analysis was used the multiple linear regressions to identify factors relates perceived social support among the elderly.

Three main reasons that this study used multiple linear regressions were:

- 1) this model relevant for the best prediction of a dependent variable from several independent variables
- 2) Independent variables can be either continuous or categorical
- 3) Perceived social support were measured in continuous scale which correspond of the multiple regression criterion that the dependent variable must be measured on a continuous scale (Coakes & Steed, 2000)

However, before doing the multiple linear regressions to identify the model relevant for the best prediction of a perceived social support from several independent variables (as mentioned above), each regression analysis of this study following the important assumption underpin the use of regression as follow;

- 1) The sample size of this study enough for the number of cases needed depends on the type of regression model to be used. For standard or hierarchical regression have twenty time more cases

than predictors, whereas even more cases are required for stepwise regression.

- 2) Extreme cases (Outlier) have considerable impact on the regression solution and should be deleted or modified to reduced their influence. Multivariate outliers can be detected using statistical methods as Mahalanobis distance.
- 3) Multicollineality and singularity- multicollineality refers to high correlation among independent variables, whereas singularity occurs when perfect correlation among independent variable exist. These can be detected by examining the correlation matrix, squared multiple regression and tolerances.
- 4) Normality, linearity, homoscedasticity and independent of residuals, these can be tested by residual scatter plots. It is assume that the difference between the obtained and predicted dependent variable score are normally distributed, also, it is assumed that the residuals have a linear relationship with predicted dependent variable scores, and that the variance of the residuals is the same for all predicted scores. (Coakes & Steed, 2000).

Therefore, all predictor variables that were examined by bivariate analyze and statistically significant were eligible for entering into the subsequent multivariate analysis. These analyses were used to assess the predictor of social support among the elderly.

Data were analyzed using Statistics Package for the Social Science (SPSS) version 11. In determining difference, an α level of 0.05 was used to differentiate true effect from chance occurrence.

4.7.2.2 Content analysis

All data of In-depth interview in each topics and subtopic including interviewers note, comments and observation, were analysis in each consists of considering responds in ach topics as group, and drawing interpretative conclusions about commonly held belief, attitudes or opinions. Also, the analysis seeking for the proportion of various sub group interviewed giving their reasons under each category, the apparent strength with the certain attitudes were held, or issues on which there is substantial difference of opinion and so on.

In conclusion, data analysis process as shown as table follows:

Table 4.2: Framework of the Study

Objectives	Indicators	Research Tools	Statistical Calculation
<p>1. to explore the elderly characteristics into four areas; socio demographic characteristics, social network, social integration, and personal health characteristics</p> <p>2. to assess the level of perceived social support and its factors among the elderly</p>	<p>Describe the elderly characteristics</p> <p>1. Describe perceived social support level among the elderly</p> <p>2. Identify factors (socio demographic, social network, social integration and personal health characteristics) that influencing perceived social support</p> <p>3. Determine perceived social support determinants among elderly</p>	<p>Questionnaire</p> <p>Questionnaire</p>	<p>1. Descriptive statistics such as frequency, percentage, mean, standard deviation and cross tabulation</p> <p>2. Bivariate analysis using chi-square test for category variables and Student's t test, Man Whitney U test for continuous variables.</p> <p>1. Describe statistics using frequency, mean, standard deviation and independent sample t test comparing perceived social support among the elderly</p> <p>2. Bivariate analysis were used for identify factors influencing perceived social support. The tests were undertaken with independent sample t test for two groups of different subjects on one variable and ANOVA for more than two sets of score.</p> <p>3. Multivariate analysis- Multiple regression were used for determine perceived social support determinant among the elderly</p> <p>Content analysis</p>
<p>3. to explore the elderly, elderly social network and community organization in activities, needs and problems in addressing social support for the elderly</p>	<p>Narrative the elderly and their social networks perspectives, activities, needs and problems in addressing social support for the elderly.</p>	<p>In depth interview</p>	<p>Content analysis</p>
<p>4. to explore the strategy that combines quantitative and qualitative information in the development of intervention to strengthening social support among the elderly</p>	<p>Plan of action</p>	<p>Community empowerment through evaluation procedure</p>	<p>Synthesize all of research findings into the plan of action and evaluation</p>

4.8 Ethical Considerations

Prior to data collection, approval was obtained from the Ethical Committee of the Faculty of Medicine, Chulalongkorn University. The researcher first contacted the director of Khon Kaen Provincial health office, the research site, to obtain written permission for data collection in four districts. Then, the researcher contacted the key persons from each villages and the chief of health centers to obtain lists of the elderly. Total numbers of the elderly were used and select other potential subject (family care givers, elderly close friend, community leaders and staff of community organizations). Once the participant was identified, the researcher will go to their home to explain the study purpose and to obtain verbal consent. When subjects agree to participate, a one-time interview will be conducted by the researcher in their homes or at the participants' convenience.

The participant will be informed that no major risks were anticipated for participants in this study. Participants were assured that they might discontinue participation in the study at any time, simply by stopping the interview or by omitting to answer the questions uncomfortable for them. They also will be assured that their decisions to discontinue participation will not affect their relationship with any organization or group. No invasive procedure will be employed in this study.

The participant will be assured of the confidentiality of their answer by using code numbers on the questionnaires instead of names. All data will be reported in the aggregated form. No individual will be able to identify from any data report. All data will be kept in a locked filing cabinet accessible only to the researcher when not in use.

The list linking the data with names of the participants will be destroyed upon completion of the study.

4.9 Empowering Community Initiatives for Strengthening Social Support among the Elderly through Evaluation Process

To answer the last important research question, the findings of this study, the literature review in both social support among the elderly, the social environment were important input of the process of community empowerment through evaluation.

The process of community empowerment through evaluation of this study is as follows:

1) Community forum to exploring community concern, resources

The forum aims to listen to the community concerns which consisted of informal public meetings in which stakeholders identified: community health staffs, Sub-district Administrative Organization staffs, the elderly, representative of elderly care giver, chief of the elderly club, community leader.

The forum is the important process that made the researcher learning in the community perspective in elderly problems or issue, barriers or resistance to addressing the elderly social support problems, resources for the change, and potential solutions. At this step, it would be continued to be held throughout the initiative to meet empowerment aims of (a) maintaining community involvement in setting the goal and objectives, and (b) attracting volunteers to help the action plan.

2) Group process (AIC)

To empower the community stakeholders regards to strengthening social support among the elderly were applied. Researcher and team assist community stakeholder in identifying elderly social support problems, prioritizing and identifying the mission and objectives in strengthening social support among the elderly by using the research findings and literature reviewed. Researcher and team act as facilitators facilitate with group and provide consultation to review and, if necessary, adapt these aspects of the strategic plan. The issues were:

- (a) Problems or issue
- (b) Resources for the change
- (c) Empowerment initiative
- (d) A plan for action

3) Developing Strategies and Action Plan

The community initiative, developing strategies and action on the social support solution selected. The AIC were assisted the community in developing the action plan including resources and their application, timeframe, work plan, monitoring, evaluation, review, and feedback into further planning process.

4) Monitoring Process and Outcome

Implementation will be monitored by selected persons from all stakeholders based on the monitoring and evaluation plan already developed. The project that developed were the activities that aims to the elderly involved, and interaction with social relationship , however, for social support intervention program, evaluation based on the intervention goal, including three level;

- (1) **Process**; alter the social environment's structure or supportive transactions
- (2) **Proximal effects**; demonstrate desired level of change in social support perceived/received
- (3) **Distal effects**; demonstrate desired level of change in health status behavior, and well being among the elderly

5) Communication Information and Relevant Audience

The output of the evaluation process will be discussion openly in community forum, where all stakeholders will be represented. Acceptance and feedback from community will be the improved by the community and elderly involvement.

The learning experience of the strengthening social support plan would be document for data to coalition membership, boards of directors, current and prospectus funding agents and other important constituents.

6) Promoting Adaptation, Renewal and Institutionalization

By the community empowerment evaluation, the success or failure of the project that implementation, it's valuable to learning from the experiences and considers new plans and actions that will be more effective in strengthening social support of vulnerable population as the elderly people. The researchers or community support team facilitate training and provide regular consultation to this end. However, this is the cycle of development that as the time go by the some activities change, therefore, the needs of adaptation, renewal were concerned.

Step of the development of Empowering Community Initiatives for Strengthening Social Support among the Elderly through Evaluation program are as figure 17

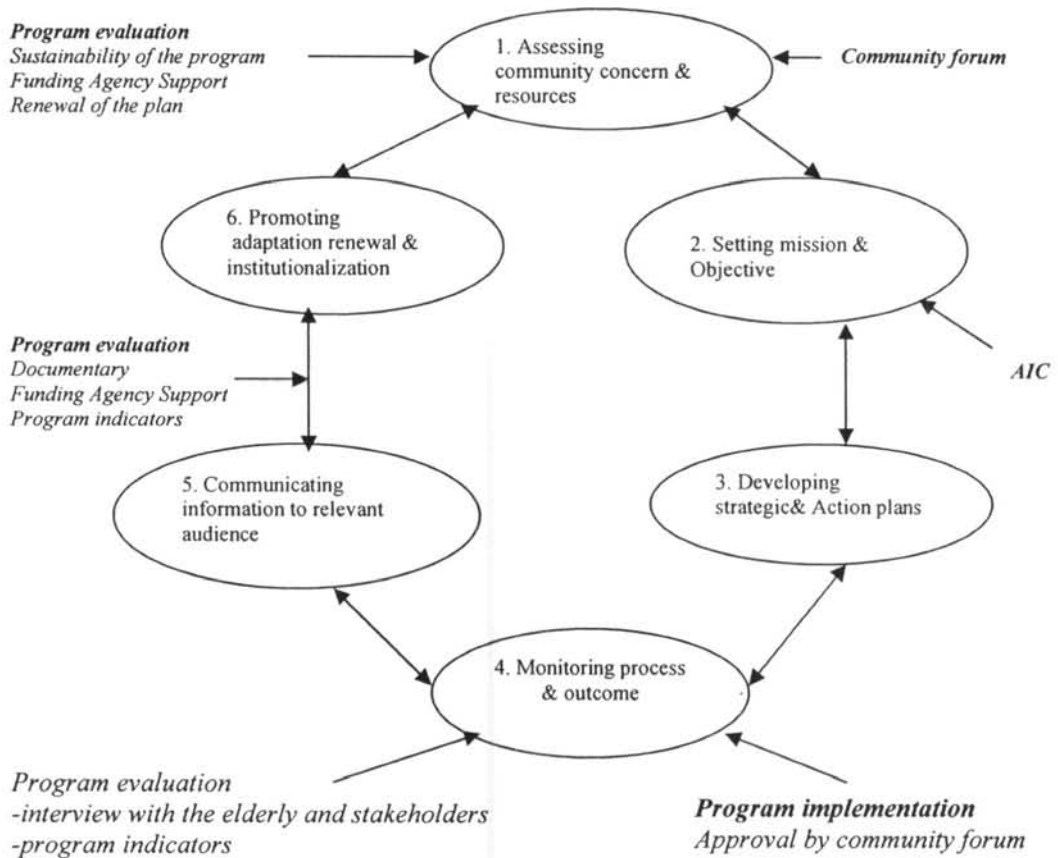


Figure 17: Empowering Community Initiatives for Strengthening Social Support among the Elderly through Evaluation Process

In community empowerment evaluation the step 1-6 is dynamic. However, due to budget and limitation of the time of study, this study only find out to answer of research questions which is development of the strengthening social support among the elderly action plan through evaluation program.