CHAPTER 3

Methodology

This chapter presents the methodology of this study including the research design, population and sample, research setting, research intervention, research instruments including statements of reliability and validity, data collection, and data analysis.

Research Design

This experimental pretest-posttest control group design was designed to determine the effectiveness of the family caregiver capacity building program for family caregivers in improving care ability of family caregivers and quality of care. The family caregivers were randomized into an experimental and a control group. The experimental group received the capacity building program and the control group did not receive the program (Figure 4).

R	Intervention group	O_1	X	O_2	O_3
	Control group	O_1	-	O_2	O_3

R = Randomization

X = Intervention

O_1 = Pretest for the experimental and control groups (baseline data) on care ability, and quality of care.

O_2 = Posttest for the experimental and control groups on care ability of family caregivers, 12 weeks after program.

O_3 = Posttest for the experimental and control groups on quality of care of family caregivers, 24 weeks after program.

Figure 4. The experimental pretest-posttest control group design

Population and Sample

Population

The population of this study was the couple of family caregivers and their elderly with dependence all over Bang Pa-In District, Phra Nakhnon Si Ayutthaya province.

Sample

The samples were selected from using multistage sampling method. Two sub-districts of Bang Pa-In district were randomly selected. The prospective participants were randomly and equally assigned into experimental and control groups.

The inclusion criteria for the sample were: the family caregivers

1. Age 20-59 years,
2. Living with the dependent elders and be responsible for caring of the dependent elders with the following criteria:
    1) Age 60 years and over,
    2) Being able to communicate in Thai,
    3) Partially dependence and totally dependence according to the score from the Depencency Screening Tool for Village Health Volunteers developed by Pothiban, Vathisunthorn and Panuthai (2010).
3. Being able to communicate in Thai,
4. Willing to participate in this program, and
5. Have never participated in another family capacity program before beginning of this study at least 6 months.

The discontinuation criteria for the family caregivers and the dependent elders include:

1. Not being able to attend at least one session of the family capacity building program,
2. Be hospitalized during participate in this program,
3. Death,
4. Be referred or moved to another setting, and
5. Not available for follow-up at home.

Sample Size

The sample size was calculated by using power analysis from G*Power software program (Faul, Erdfelder, Buchner, & Lang, 2009) in order to reduce the type II error (Burns & Grove, 2001). The sample size was determined based on a previous study using a combined intervention of the study of Sahar et al. (2003). The effect size from this study was .35. A power of .80 and the significance level of .05 (two-tailed) were determined. The sample size from the power table was 23 for each group and a total of at least 46 participants. In previous studies, the attrition rate of a 3-month study including single and combine interventions from death, transfer out of area, losing following up, too ill, or refusing participation were varying around 0-25% (Li et al., 2003; Liedy, 1994; Sahar et al., 2003; Shyu et al., 2010). Therefore, the sample estimated of the anticipated attrition rate in this study was 25%. Therefore, the sample of 29 participants per group and a total sample of at least 58 participants were needed.

Sampling

The study was conducted in Phra Nakhnon Si Ayutthaya province. A multistage sampling method was chosen in order to select two sub-districts of Bang Pa-in district. Next, 1,018 older persons residing in those two sub-districts were screened for dependency. Later, the dependent elders who met the inclusion criteria were randomly assigned into both experimental and control groups as presented in Figure 5.

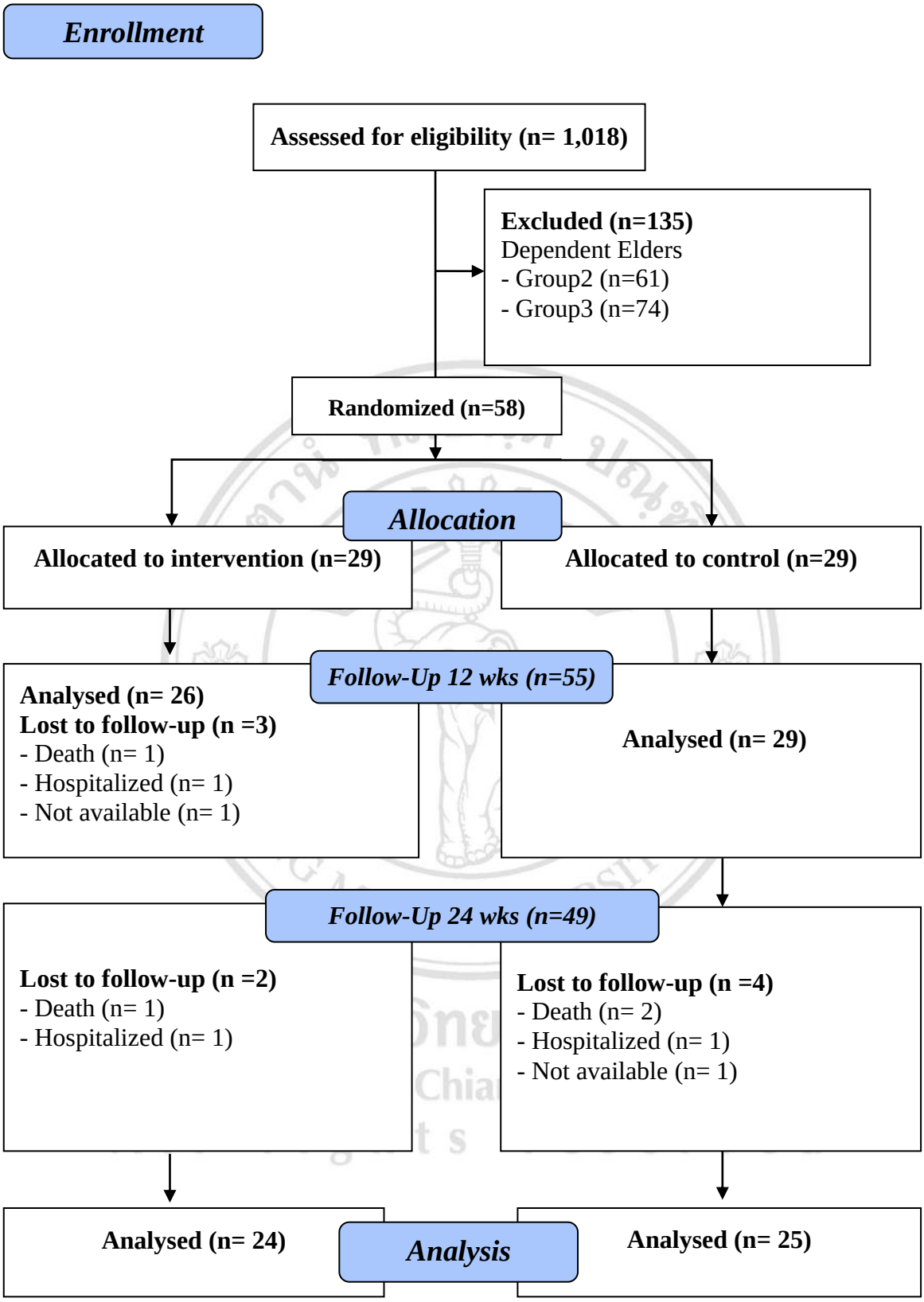

Figure 5. Flow diagram presents recruitment trial

Research Setting

Owing to the expanded geographic spread, the time factor and the budget limitations, this study was only conducted in two sub-districts of BangPa-In district. Two sub-districts (Ban-Krod and Sam-Ruean) had comparable characteristics in terms of socioeconomic conditions, location, transportation, culture, and health services from the Sub-districts Health Promoting Hospital

Research Intervention

The family caregiver capacity building program was developed by the researcher based on the Hulme's practices through family capacity building process (Hulme, 1999) consisting of activities in 4 phases, including professional-dominated phase, participatory phase, challenging phase, and collaborative phase as presented in Table 1.

The Professional-Dominated Phase

The professional-dominated phase, activities included:

Group education. According to the characteristic of family members which were dependency on health care providers to fulfill needs of care recipients in this phase, activities to strengthen the capacity of family members were information provision from health care providers. Information given to family caregivers included caregiving roles, skills in family caregiving processes (monitoring, interpreting, making decisions, taking action, making adjustments, accessing resources, providing hands-on care, working together with the ill person, negotiating the health care system), problems and needs of dependent elders, common chronic illnesses and geriatric syndrome among older persons, rehabilitation, device usage, and injury and accident prevention. Methods used to provide information consisted of six sessions of group education and group discussion following teaching plan at the 1st and 2nd week of the program. Teaching material aids were flip chart and power point presentation and booklet. Empowerment strategies used in this phase were building trust, establishing a direct relationship with the elderly, prioritizing the family's perceived needs, helping the family determine care problems, and providing accurate and complete information.

Teaching plan. Teaching plan contained teaching objectives, contents, methods, teaching aids, and outcome evaluation. Seven sessions were consecutively arranged including: 1) caregiving roles 2) skills in family caregiving processes (monitoring, interpreting, making decisions, taking action, making adjustments, accessing resources, providing hands-on care, working together with the ill person, negotiating the health care system) 3) problems and needs of dependent elders, 4) common chronic illnesses and geriatric syndrome among older persons, 5) rehabilitation 6) device usage, and 7) injury and accident prevention.

Caregiving for the dependent elders booklet. This booklet was designed to provide to family members in the 1st week of group education to improve their knowledge. The contents included: 1) caregiving roles 2) skills in family caregiving processes (monitoring, interpreting, making decisions, taking action, making adjustments, accessing resources, providing hands-on care, working together with the ill person, negotiating the health care system) 3) problems and needs of dependent elders, 4) common chronic illnesses and geriatric syndrome among older persons, 5) rehabilitation 6) device usage, and 7) injury and accident prevention.

Participatory Phase

Group and individual caregiving skill training. Family caregiving activities composing of day-to-day activities, illness-related care, care management, and invisible aspects of care were arranged to improve skills of family caregivers. Group and in-home training techniques were applied for 2 weeks. Details of caregiving activities were as follows:

1. Day-to-day activities included personal-care activities (bathing, eating, dressing, mobility, transferring from bed to chair, and using the toilet) and IADL (meal preparation, grocery shopping, making telephone calls, and money management).

2. Illness-related activities included managing symptoms, coping with illness behaviors, carrying out treatments, and performing medical or nursing procedures that included an array of medical technologies.

3. Care-management activities included accessing resources, communicating with and navigating the health care and social services systems, and acting as an advocate.

4. Invisible aspects of care are protective actions caregivers take to ensure the older adults' safety and well-being without their knowledge.

Empowerment strategies used in this phase included assisting the family in setting own goals of care, guiding the family in assessing its own support system and resources and assessing strengthens and mobilizing those strengths and resources to meet the needs.

Challenging Phase

Activities included partnership relationship development and communication and negotiating skills training. Empowerment strategies included reinforcing the family's ability to identify choices in health care and building skill in negotiating with health care personnel.

Collaborative Phase

Activities included home and telephone visit as described below:

1 The family caregivers were provided two individual home visits to monitor, support, appreciate, and acceptance them about caregiving skills.

2. Telephone counseling was also be included in the program for participants whose problems cannot be solved. Also, support, appreciate, and acceptance them about caregiving skills were included in telephone visit.

3. Empowerment strategies utilized in this phase composed of acknowledging family for good care.

Table 3-1

Schedule and Contents of FCCBP Intervention Program

Week/Session	Contents	*Empowerment* Strategies
Week 1	**The professional-dominated phase**	
Session 1	Information about problems and needs of dependent elderly and needed skills to fulfill those needs.	- Building trust by creating rapport with the families and establish a direct relationship with the family caregivers.
Session 2	Information about most common chronic diseases, common geriatric syndrome, approaches to self-care.	- Prioritizing the family's perceived needs. - Providing accurate and complete information.
Week 2		
Session 3	Information about roles of family caregivers, caregiving activities, and home and environment modification.	- Supporting the family caregivers in setting its own goals.
Session 4	Refresh knowledge session 1-3.	
Week 3	**The participatory phase**	
Session 5	Group and individual demonstration and return demonstration on the basic activities of daily living, including bathing, dressing, eating, mobility, moving from chair to bed and vital signs monitoring.	- Helping the family determine the family care. - Providing accurate and complete information. - Supporting the family caregivers in setting its own goals.
Session 6	Information about prevention of complications of immobilization, care activities for persons with drainage, feeding, foley's catheter care and constipation prevention and management.	- Guiding the family caregivers in assessing own support system, resources and strengths. - Strengthening capacity of family caregivers in caring and problem solving.

Week/Session	Contents	*Empowerment* Strategies
Week 4		
Session 7	Information on rehabilitation.	
Session 8	Refresh knowledge session 5-8.	
Week 5	**The challenging phase**	
Session 9	Communication strategies, partnership relationship development.	- Supporting the family caregivers in peer support group.
Session 10	Problem solving skills and negotiation skills.	- Reinforcing the family's ability to identify choices in health care. - Discussing with the family caregivers regarding advocacy techniques. - Building skills in negotiating with health professionals.
Week 6	**The collaborative phase**	
Session 11	Repeating implemented by review skills in troubleshooting, ask questions after reviewing knowledge until the score indicates improvement of preparedness of caregiving.	- Monitoring and supporting about caregiving skills at home. - Acknowledging family caregivers for good care.

Research Instruments

The research instruments used to collect data comprised of the screening tool and data collecting tools as follows:

The Screening Tools

The dependency screening tool for village health volunteers developed by Pothiban et al. (2010) was used to measure the level of dependency of older persons. Six basic activities of daily living including eating, dressing, bathing, toileting, movement in the house and activities outside the house were included in this measurement. Each activity was rated as no attempt, some help, and independent. The score for each activity was assigned due to the level of ability to perform of the respondent. The score for the items were summed, and the higher score indicates the more independence. The independence means the person needs no assistance with any part of the activity. The total scores were used to divide older persons into three groups. The older persons in the independent group are those who can complete all six tasks independently. The older persons in the partially dependent group can perform all five basic activities including eating, dressing, bathing, toileting, movement in the house independently, while an activity outside the house is needed some help from others. For the totally dependent group, they needed some help in all of the basic activities of daily living and the complex activities of daily living.

Data Collecting Tools

1. Demographic Data Form for dependent elders was developed by the research that contained information about age, gender, marital status, educational level, previous occupation, own monthly income, sufficiency of income, history of disease, and level of dependency.

2. Demographic Data Form for the family caregivers was developed by the researcher to gather information about age, gender, marital status, educational level, occupation, history of illness, duration of caregiving, and relationship with dependent elder.

3. Caregiver's Care Ability Scale modified from the Ability of Care for Older Persons with Alzeihmer Scale developed by Pukdeeporm (2005) was used to measure ability of family caregivers to care for dependent elders. It consisted of 14 positive and negative questions measuring ability of care in 3 dimensions, including physical care, psychological care, social and environmental care. Statements were scored as 1 to 5 according to the levels of perception of ability starting from strongly agree to strongly disagree. Higher scores indicated higher level of care ability.

4. Quality of Care Assessment (QUALCARE) scale developed by Philips et al. (1990a, 1990b) was used to measure quality of care. It contained 48 items to measure three components of quality of care, including environmental, physical, and psychosocial aspects. The scoring for this 5-level measurement ranged from 1 to 5 points. The lower scores indicated the higher quality of care.

5. Preparedness for Caregiving Scale

Preparedness for Caregiving Scale (Archbold, Stewart, Greenlick, & Harvath, 1990) is a caregiver self-rated tool that consists of eight items that ask caregivers how well prepared they think that they are for multiple domains of caregiving such as providing physical care, providing emotional support, setting up in-home support services, and dealing with the stress of caregiving. Responses were rated on a 5 point scale with scores ranging from 0 (not at all prepared) to 4 (very well prepared). The higher the score the more prepared the caregiver feels for caregiving; the lower the score the less prepared the caregiver feels.

Preparation of the Researcher Assistant

For this study, the research assistant was trained to collect the data on care ability and quality of care. A research assistant was a nurse practitioner who was working at the Community Health Center, Medical Center, Phra Nakhon Si Ayutthaya Hospital. The research assistant was informed about the instruments and technique of data collection. Then, she also was assigned one family caregiver to assess for care ability and the data were compared with the researcher's data. Also, she was asked to measure quality of care of one subject of dependent elder and the data were compared with the result with the researcher's data. An interrater reliability value was reported of 1.0 which was acceptable.

Testing for Quality of Research Instruments

Validity

1. The Family Caregiver Capacity Building Program was tested for its' content validity from five experts in the fields of gerontology, education, and family nursing. The program was revised according to the suggestions and recommendations of those experts.

2. Caregiver's Care Ability Scale was tested for its' content validity from five experts in the fields of gerontology, education, and family nursing. The content validity index was demonstrated of .83. The comments and suggestions from experts were taken into consideration to revise this instrument.

3. The QUALCARE for assessment the quality of care, translation and back translation technique were used to achieve semantic equivalence in translation of this instrument since it has never been used in Thailand. The QUALCARE was translated from the original English into Thai by the researcher (forward translation). The Thai version of QUALCARE was back-translated into English by a Thai bilingual expert without any reference to the original English version. The original English version and the back-translated English version were compared for semantic equivalence in translation. When an error was found in the back-translated version, another translator attempts to retranslate the item. This procedure continued until a team of bilingual translators agrees that the two versions of the instruments were identical and have no errors in meaning. (Cha, Kim, & Erlen, 2007).

Reliability

1. Caregiver's Care Ability Scale was tested for its' internal consistency reliability with 15 family caregivers who were similar to the sample. The Cronbach's alpha coefficient of the Caregiver's Care Ability Scale was reported at .93 which was acceptable (Polit & Hungler, 1999).

2. Quality of Care Assessment (QUALCARE) scale was tested for its' internal consistency reliability by using inter-rater reliability. This technique was used to assess the

degree to which different observers gave consistent estimated of the same phenomenon. A research assistant and a researcher were assigned to observe quality of care of one dependent elder by following the items of the QUALCARE and gave the score. Then, the calculation of the correlation between the ratings of the two observers was conducted and the result indicated the acceptable inter-rater agreement index which was 1.0

Human Rights Protection of Research Subjects

This study was approved by the Institutional Review Board (IRB), Faculty of Nursing, Chiang Mai University, and the Office of Public Health District and Provincial Health Office of Bang Pa-In Changwat Phra Nakhnon Si Ayutthaya before proceeding with the study. The participants were voluntarily selected and were provided a document showing descriptions to fully explain the objectives, methods, risks and benefits of being participants before their informed consents.

During the gathering of data in this study, the researcher gave an opportunity to the participants to ask questions, or refuse to answer about matters that they could not desire to discuss or be interviewed, or withdraw from the study all any time of this research study. All information of the participants was not revealed and kept as secret but that was used for research objectives only. The results were remained anonymous and were presented in overall images. For the control group in this study they were properly provided with the interventions just only for the one who needed it.

Data Collection

1. After getting approval from the Research Ethical Committee of the Faculty of Nursing, Chiang Mai University, the researcher contacted Head of the Public Health Office of Bang Pa-In District, Changwat Phra Nakhnon Si Ayutthaya, and asked for their permission to conduct a research after the purposes and procedures of the study be informed.

2. The researcher recruited the prospective participants (the dependent elders and family caregivers) who met the inclusion criteria and invited them to participate in the study.

3. The researcher informed the purposes and procedures of the study to the participants who agreed to take part in the study and asked for their initial consent.

4. A complete explanation about the study was given to the participants who met the inclusion criteria and those who agreed to participate in both control and experimental groups were asked to sign the consent form. Those participants were asked to provide the demographic data and data on preparedness of care, care ability and quality of care at their own home.

Procedure for the Control Group

The control group did not receive the family caregiver capacity building program. They received home visit from nurses and health volunteers under the authority of the Sub-district Health Promoting Hospital every month. The nurses and health volunteers gave information, suggestions to the family caregivers who provide care for the dependent elders. The researcher measured preparedness for caregiving at 6th week, care ability at 12th week and quality of care at 24th week.

At the end of the program, to offer equivalent benefit to both the control and experiment groups, the researcher gave the control group a booklet of care.

Procedure for the Experimental Group

The researcher was set the appointment with family caregivers in the experimental group to participate in the program. Four group sessions of family caregivers, 8 family caregivers in each group, were set up for group session that was 1.5-2 hours lasting at the 1st, 2nd, 3rd, 4th, 5th, and 6th week. The details of activities were as follows.

Week 1-2: Professional-dominated Phase (Session 1-4). Information about the problems and needs of dependent elderly and necessary skills for fulfilling those needs, most common chronic diseases, common geriatric syndromes, approaches to self-care, roles of family caregivers, caregiving activities at home and environment modification were provided. Empowerment strategies including building trust by creating rapport with the families and establishing a direct relationship with family caregivers, prioritizing the

family's perceived needs, providing accurate and complete information and supporting the family caregivers in setting personal goals were included.

Week 3-4: Participatory Phase (Session 5-8). Group and individual demonstration and return demonstration on the basic activities of daily living, including bathing, dressing, eating, mobility, moving from chair to bed and vital signs monitoring, rehabilitation, bed-sore prevention, care activities for persons with drainage, feeding, catheter care and constipation prevention, drainage care and feeding were conducted. Helping the family to determine the family care, providing accurate and complete information, supporting the family caregivers in setting personal own goals, guiding family caregivers in assessing personal support systems, resources and strengths and strengthening capacity of family caregivers in caring and problem-solving were also implemented.

Week 5: Challenging Phase (Session 9-10). Communication strategies, partnership relationship development, problem-solving skills and negotiation skills were utilized. There are supporting the family caregivers in the peer support group, reinforcing the family's ability to identify choices in health care, discussing with the family caregivers regarding advocacy techniques, and building skills in negotiating with health professionals.

Week 6: Collaborative Phase (Session 11). Repeating the implementation by reviewing skills in troubleshooting and asking questions after reviewing knowledge until the scores indicated improvement of preparedness for care-giving. There are monitoring and supporting caregiving skills at home and acknowledging family caregivers for good care.

Data on preparedness for caregiving were monitored. All participants in the experimental group indicated that they were ready to care for dependent older people.

Week 7-12: Individual Session. Family caregivers were able to call the researcher for individual counseling throughout the intervention if they required help for solving the problems during performing caregiving activities.

Week 12: Data on care ability were collected.

Week 24: Data on quality of care were collected.

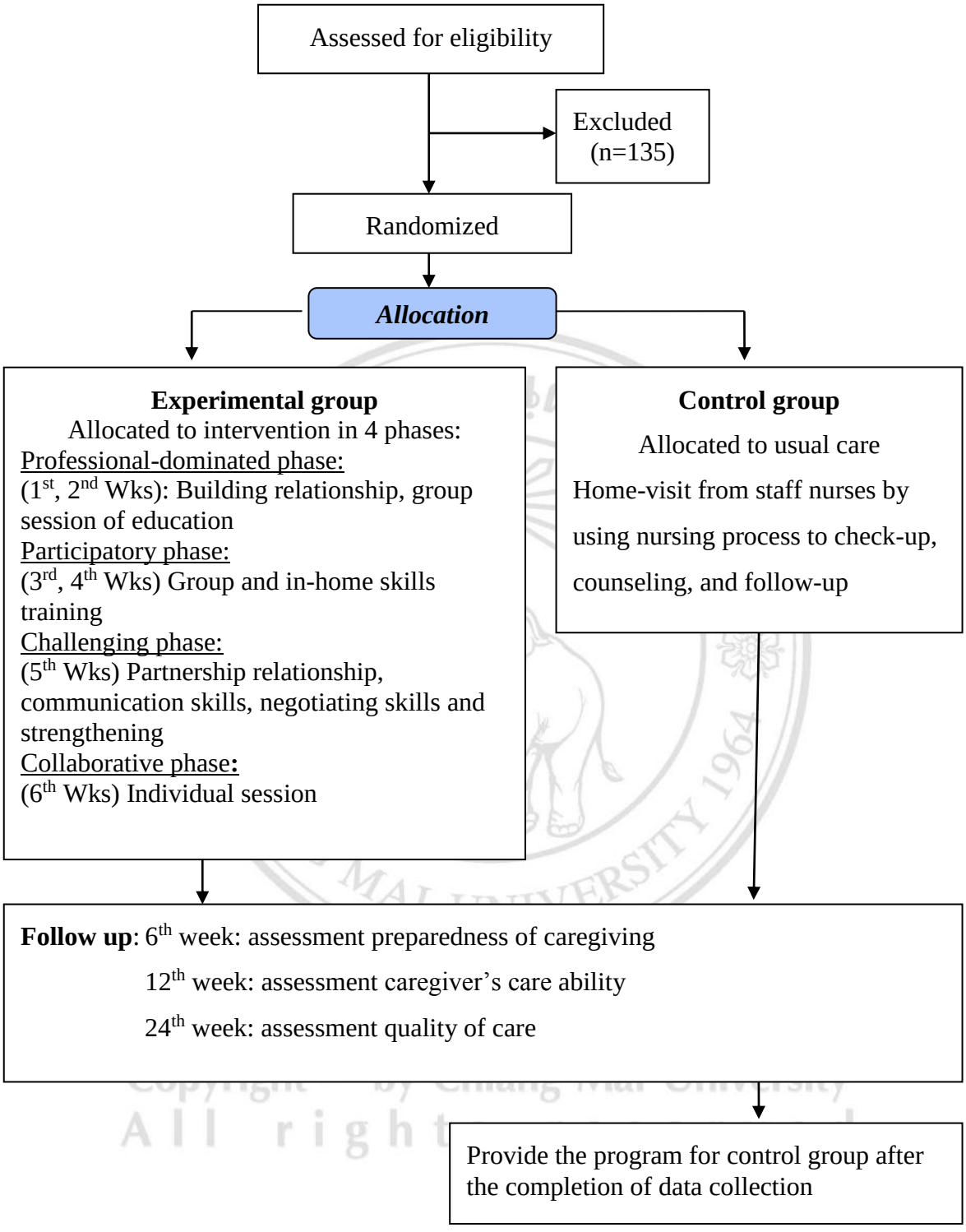

Figure 6. Data Collection Method

Data Analysis

Data were analyzed by using software program applying the Statistical Package of which included both descriptive and inferential statistics as follows:

1. Descriptive statistics including frequency distribution, range, mean, and standard deviation were used to explain the demographic data. Chi-square, Fisher's test and independent t-test were used to examine the difference between experimental and control groups on categorical variables of the study both the dependent elders and the family caregivers.

2. Normality of the scores both care ability and quality of care before testing the effect of family caregiver capacity building program at baseline, week-12 and week-24 were tested using histogram, skewness, kurtosis, and Kolmogorov-Smirnov statistic testing. A visual check of the histogram was compared with normal curve to determine the normal distributed data. The skewness value between -1.0 to +1.0 and the Kolmogorov-Smirnov tested was used to test normal distribution. In this study, from statistical test the scores of overall care ability and quality of care at baseline, week-12 and week-24 were normally distributed (see Appendix J).

3. Paired t-test was used to compare both care ability and quality of care between before and after participate the capacity building program for experimental and control groups.

4. Independent t-test was used to compare both care ability and quality of care between experimental and control groups after completing the program.