

CHAPTER 3

METHODOLOGY

This chapter consists of the methodology of the study. The topics discussed are research design, population, sample size and sampling method, instrumentation, testing of validity and reliability of the instruments, protection of human subjects, data collection process, and data analysis.

Research Design

This study employed a descriptive research design to develop an instrument for screening elder abuse, to identify the prevalence and risk factors for elder abuse, and to describe the self management among older adults in Chiang Mai, Thailand. Both qualitative and quantitative data were used to develop the instrument for screening elder abuse. A cross-sectional design, case-comparison, was used to compare risk factors for elder abuse between older adults who were abused and older adults who were not abused. The study was descriptive since the purpose of the study was to describe the phenomena of interest (Polit, Beck, & Hungler, 2001). It was cross-sectional as data were collected at one point in time (Polit et al., 2001) and both the risk factors and abuse outcomes were determined simultaneously for each participant (Gordis, 2000). Finally, the study was case-comparison because it involved the comparison of a group of persons with that abuse situation and a group of people without that abuse situation in order to determine the strength of the

association between the risk factors and abuse outcomes (Gordis, 2000; Polit et al., 2001).

Population, Sample Size, and Sampling Method

The population of this study was all older adults aged 60 years and older residing in Chiang Mai municipality, Thailand. The aging population of Chiang Mai municipality area was 3,939 persons (Population Studies Unit, Chiang Mai Municipality, personal communication, January 23, 2002). The inclusion criteria for the sample recruitment were as follows:

- (a) Being 60 years of age and older
- (b) Being able to communicate verbally
- (c) Receiving the score of ≥ 15 on the Chula Mental Test (see Appendix A)
- (d) Willing to participate in the study.

Since data collection process was divided into 3 phases, there were three groups of participants in this study. Both the sample size and the sampling method were varied on the objectives of each phase.

Phase I: Exploring and testing the cultural sensitivity of the meaning and the components of elder abuse among Thai older adults

The purposive sampling was used to recruit the respondents for focus groups in order to explore and test the cultural sensitivity of the meaning and the components of elder abuse among Thai older adults. At first, it was planned to recruit 36-54 older adults from those residing in the Home for the Age, rural area, and urban area of Chiang Mai for the focus group discussions. However, the plan was refined based on the preliminary findings. Twenty-seven older adults were recruited and divided into 4

groups: two from those living in the Home for the Aged, one from those in the rural area and another one from those in the urban area. The first two groups (5 males and 6 females) represented the older adults who were poor, neglected, and had no relative to live with or could not live happily with their own families. The third group (9 respondents both male and female) and the fourth group (7 respondents both male and female) represented the rural and the urban group consequently.

Phase II: Testing the Elder Abuse Scale, the Modified H.A.L.F. Assessment Tool, the Barthel ADL Index, and the Chula ADL Index

Eighty participants from convenience sampling constituted the sample to test the Elder Abuse Scale developed by the researcher. The Modified H.A.L.F. Assessment Tool, the Barthel ADL Index, and the Chula ADL Index were tested with 20 participants among the 80 participants above. This group of participants reflected the problems of the clarity of wording and use of readily understandable terms, and the appropriateness of questions for using in Thai older adults. The instruments, then, were modified based on the feedback received.

Phase III: Identifying the psychometric properties of the Elder Abuse Scale, investigating abusive prevalence, risk factors for abuse, and management strategies of elder abuse

Although power analysis is a traditional protocol for the determination of an adequate sample size, it is not beneficial when the primary hypothesis focuses on psychometric properties of the instrument (Sapnas & Zeller, 2002). Since power analysis used to estimate an adequate sample size do not cover Logistic Regression (Munro, 2001), Wanichbuncha (2001) provides a rough formula to determine the sample size for Logistic Regression. The estimate sample size is approximately 30

times the number of factors. Thus, the minimum sample size for investigating risk factors for abuse in the present study with 10 risk factors, would be 300.

The sample size in this phase was also based on factor analysis, a significant statistic tool for providing the construct validity evidence of the instrument (Dixon, 2001). Nunnally (1978) recommended that the minimum observation-to-variable ratio or participants per item should be 10: 1 in order to reduce the probability of misleading results based on chance. Dixon (2001) also suggested that a ratio of at least 10 participants for each item is desirable to generalize from the sample to the larger population. Nevertheless, Cattell (1978) suggested that the minimum observations-to-variables ratio varied from 3:1 to 6:1 and also indicated an absolute minimum of about 250 observations. Comrey (1973) gave a guideline of the adequacy of sample sizes of 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 as excellent. Therefore, 300 participants were planned and required to be the sample for phase three study. The observation-to-variable ratio of the present study was 7.5: 1.

Although the sample size of the present study did not meet Nunnally's criteria, it did meet the minimum criteria recommended by Cattell (1978) and Comrey (1973). Furthermore, Sapnas and Zeller (2002) determined that a sample size of at least 50 and not more than 100 observations is adequate to represent and evaluate the psychometric properties of instruments of social construct. Arrindell and van der Ende (1985) also recommended that the establishment of stable factor solutions might be obtained when the sample size is approximately 20 times the number of factors. Thus, the minimum sample size for the current study with a five-factor solution, would be only 100.

Therefore, 300 older adults living in Chiang Mai municipality, Thailand were the sample for testing construct validity and criterion related validity of the new elder abuse instrument developed by the researcher and identifying the prevalence and risk factors for elder abuse and self management. Steps of obtaining the participants were as follows:

1. Multistage random sampling was used to obtain the participants. Chiang Mai municipality is divided into 4 counties: Nakon Ping, Kavira, Srivichai, and Mengrai. Two subdistricts were randomly selected from each county. Then, one community from each selected subdistrict was randomly obtained. Thus, eight communities, Wat Chum Poo, Muang Lung, Nong Hoy, Nong Phatheep, Paha, Changtam, Chang Khong, and Nuntaram, were included in the study. About 38 participants were drawn from the communities in each selected community with ten extra names in case some subjects were ineligible or refused to participate and had to be replaced. The process of multistage random sampling was illustrated in Figure 2.

2. The Mayor of Chiang Mai municipality was contacted and informed about the study. Permission to conduct the study was assured. A letter asking for permission to collect data in the selected subdistricts was also sent to the Head of the community and the Head of each county. After receiving permission, direct contact with selected Community Heads and Health Care Volunteer Heads was made to request a list of names of people aged 60 and older living in the selected communities.

3. Older adults who met the age criteria were randomly selected from each list. The researcher directly contacted the prospective participants. An appointment was made to introduce the researcher and provide the information about the objectives and methods of the study. A participant was excluded if the score of the Chula

Mental Test were less than 15 and had a problem with verbal communication. Replacement from the list of extra prospective participants was selected until 38 participants in each community were obtained.

Therefore, 304 eligible participants were recruited in the study. Nineteen participants were excluded from the study because of having the CMT score less than 15. Six participants refused to participate in the study with the main reasons as having no time, and feeling uncomfortable to share family problems.

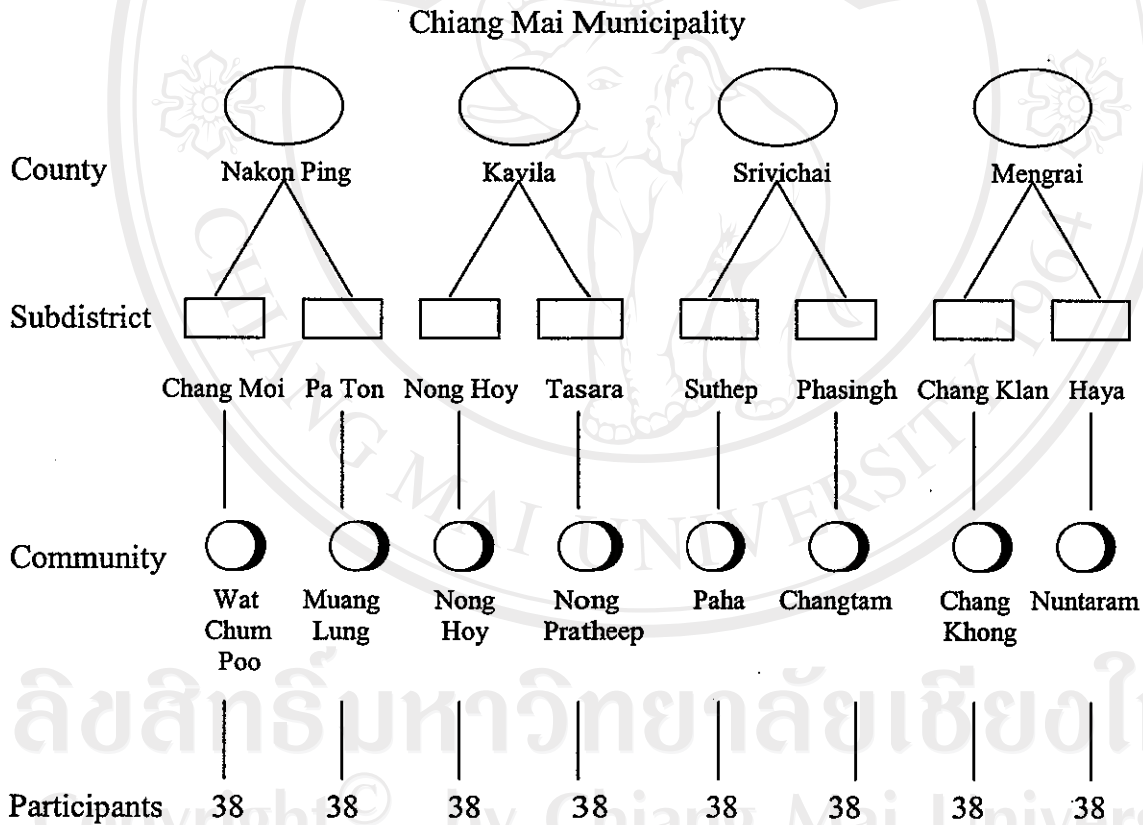


Figure 2. The process of multistage random sampling.

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Instrumentation

Structured and unstructured interviews were used to collect data. The instruments used were as follows:

1. The interview guideline for focus groups (see Appendix B)

This interview guideline included unstructured questions used to explore and test cultural sensitivity of the meaning and the components of elder abuse among Thai older adults in Chiang Mai, Thailand. The qualitative data obtained from phase 1 of the study were used to develop the instrument for screening elder abuse.

2. Demographic Data Sheet (see Appendix C)

The demographic Data Sheet developed by the researcher was used to obtain data included age, gender, marital status, educational level, older adult's income, and family income, living situations, and family history of psychiatric illness and substance abuse. These data were used to describe the sample and to provide information related to elder abuse.

3. The Elder Abuse Scale (see Appendix D)

The Elder Abuse Scale was developed by the researcher based on the literature review and qualitative data from phase 1 of the study to identify the prevalence of elder abuse, including physical abuse, psychological abuse, exploitation, neglect, and violation of rights. The initial pool items of the instrument based on the literature review and focus group discussions are 52 items of 5-point Likert scale ranging from 5 (the situation happens to you every day) to 1 (the situation never happens to you).

This instrument was modified based on the pilot study results. After refinement, the Elder Abuse Scale included 59 items of 3-point response ranging from 3 (the situation

happens to you often) to 1 (the situation never happens to you). The details of the instrument refinement were presented in Chapter 4.

4. The instruments for identifying risk factors for elder abuse including 1) the Modified H.A.L.F. Assessment Tool (see Appendix E) 2) the Barthel ADL Index (see Appendix F), and 3) the Chula ADL Index (see Appendix G)

The H.A.L.F. Assessment Tool (Ferguson & Beck, 1983) is a 37-item of 3-point Likert scale ranging from 3 (almost always) to 1 (never). The researcher modified the H.A.L.F. Assessment Tool with permission from the authors in order to identify risk factors for elder abuse among Thai older adults. The Modified H.A.L.F. Assessment Tool consisted of 23 items, 4 items for health, 8 items for attitudes toward aging, 5 items for living arrangement, and 6 items for finance. The instrument was 4-point Likert scales ranging from 4 (strongly agree) to 1 (strongly disagree). The higher scores indicate the higher risk of abuse.

The Barthel ADL Index and the Chula ADL Index were employed for assessment the functional ability. These two instruments were modified by Jitapunkul and colleagues (Jitapunkul, Kamolratanakul, Chandraprasert, et al., 1994; Jitapunkul, Kamolratanakul, & Ebrahim, 1994; Jitapunkul, 1999). The Barthel ADL Index was used to assess dependency of the activities in daily living among older adults, including feeding, grooming, transferring, toilet using, moving, dressing, walking up stairs, bathing, controlling defecation, and controlling urination. The Chula ADL Index is the instrument used for an assessment of the ability to do some activities, including walking outdoor, cooking, doing heavy house work, doing money exchange, and using public transport. The Barthel ADL Index score ranges from 0 to

20. The Chula ADL Index score ranges from 0 to 9. Lower scores indicate lower functional ability or higher dependency in both instruments.

5. The interview guideline for investigating how Thai older adults manage the abusive problem (see Appendix H)

The semi-structured interview guideline developed by the researcher consisted of two open-ended questions. These questions were employed to investigate the management strategies among Thai older adults when they confront with the abusive situations.

6. The Life Satisfaction Scale (see Appendix I)

The Life Satisfaction Scale developed by the researcher is a ten- ranked ladder ranging from 1 to 10 with higher scores indicating higher level of perceived life satisfaction. The upper end of the block represents “the highest life satisfaction”, and the lower end represents “the lowest life satisfaction”. The participants were asked to identify the rank best representing their own feeling at the present time.

Testing of Validity and Reliability

The Elder Abuse Scale

After modifying the pool items of the new instrument for screening elder abuse based on data from focus group discussions, the evidence of content validity of the new instrument was investigated by a panel of experts. Since at least five experts would provide an adequate level of control for chance agreement (Lynn, 1986), the panel of experts consisted of one violence expert, three gerontological nurse specialists, and one geriatrician. Since the aim of conducting content validity

evidence was to examine the extent to which the items or questions on an measurement includes all the major elements pertinent to the construct being measured (Burns & Grove, 2001), the experts were provided with the theoretical definitions of elder abuse concepts and the Elder Abuse Scale in the Thai version. They were asked to rate the appropriateness, accuracy, and relevance of each item using a 4-point rating scale. The scale was rated as follows: (1) not appropriate or irrelevant, (2) somewhat appropriate or relevant, (3) quite appropriate or relevant, and (4) highly appropriate or relevant. The interrater agreement on the items used in the Elder Abuse Scale was calculated by adding the number of agreements between each pair of the reviewers (all items rated 1 or 2 by both raters, plus all items rated 3 or 4 by both raters) and dividing by the total number of items (Davis, 1992). The score was calculated from each pair of the reviewers and the average score was calculated. The average score of the interrater agreement obtained for the Elder Abuse Scale from this study was 0.915 (see Appendix J). Since the score for interrater agreement greater than 0.70 was acceptable, then, the content validity was evaluated using an Index of Content Validity (CVI) (Davis, 1992). The CVI revealed the agreement between two reviewers on the content validity of all items. The score was calculated from each pair of the reviewers by adding all items rated 3 or 4 by both reviewers and dividing by the total number of items, and the average score was calculated. The average CVI obtained for the Elder Abuse Scale was 0.915 (see Appendix K). Since the levels of acceptable CVI should not be less than 0.8 (Davis, 1992), there was an evidence of the content validity of the Elder Abuse Scale. The refinement of the scale was undertaken based on the feedback provided. The Elder Abuse Scale was tried out with 80 participants for the clarity of wording and use of readily understandable

terms, the appropriateness of questions for using in Thai older adults and the format of the scale and the refinement of the scale was undertaken based on the feedback. Since the individual item characteristics had an impact on both validity and reliability of the new instrument (Mishel, 1998), item analysis was conducted to investigate an individual item characteristics among participants both in the pilot study and the process of the evaluating evidence of validity. The first item analysis gave a clue to modify the instrument. The second item analysis gave the evidence to modify or drop out some items. Pearson correlation coefficient was calculated for evaluating the internal consistency for the item to item, item to sub-scale, item to total, sub-scale to sub-scale, and sub-scale to total scale analyses. Criterion levels for the above are presented in Table 1 (Ferketich, 1990; Schepp, 1985).

Table 1

The criterion levels for the item-scale relationship

Types of correlation	The criterion levels of correlation
Item to item	0.30 - 0.70
Item to sub-scale	≥ 0.5
Item to total	≥ 0.4
Sub-scale to sub-scale	0.40 - 0.65
Sub-scale to total scale	0.55 - 0.80

The evidence of the construct validity and criterion related validity of the instrument was tested with 304 participants. Exploratory factor analysis with principal component method was performed to test the evidence of the construct validity. Factor rotation depended on factor correlation matrix. With resulting factors uncorrelated with each item, factor rotation was orthogonal rotation, varimax method. But with resulting factors correlated with each item, oblique rotation, oblimin method would be used for factor rotation. Based on the literature review of elder abuse and data from focus group discussions, there were 5 components of elder abuse. Therefore, the number of factors was specified in five factors. Moreover, the number of factors and the number of items within each factor would be determined based on the following criteria:

1. Factors with the eigenvalues greater than one were remained (Burns & Grove, 2001; Dixon, 2001),
2. The factor loading of 0.3 is the minimum factor loading that was considered to be retained an item within each factor (Burns & Grove, 2001; Dixon, 2001; Waltz, Strickland, & Lenz, 1991).

The evidence of criterion related validity of this instrument was tested with the Life Satisfaction Scale and the Modified H.A.L.F. Assessment Tool. The Pearson correlation coefficient of these instruments should be negative correlation and positive correlation, respectively.

The evidence of internal consistency reliability for both the total instrument and the five sub-scales of the instrument were assessed by using the Cronbach alpha coefficient. The alpha coefficient around 0.70 was considered an acceptable value for

the new instrument (Ferketich, 1990). The evidence of validity and reliability of the Elder Abuse Scale developed from this study were detailed in Chapter 4.

The Modified H.A.L.F Assessment Tool.

Although there is no information of both the evidence of validity and reliability available on the original H.A.L.F. Assessment Tool (C. Beck, personal communication, April 26, 2001), it is a significant tool to study risk factors for elder abuse (Hamilton, 1989). The Modified H.A.L.F. Assessment Tool was reviewed by a panel of experts for the evidence of the content validity. The panel of experts consisted of the same group of experts who reviewed the Elder Abuse Scale. Both the interrater agreement and the average CVI of the Modified H.A.L.F. Assessment Tool were calculated. The interrater agreement score and the average CVI obtained for the tool were 0.965 and 0.965, respectively (see Appendix L and Appendix M). Since levels of acceptable content validity index should not be less than 0.8 (Davis, 1992), there was an evidence of the content validity of the Modified H.A.L.F. Assessment Tool.

The Modified H.A.L.F. Assessment Tool was pretested with 20 Thai older adults in Chiang Mai province in order to detect problems in the clarity of the questions. All 20 participants gave the feedback that all items were clear and easily to understand. The stability and internal consistency of the instrument were analyzed by using the one week test-retest reliability and the Cronbach alpha coefficient, respectively. The test-retest reliability coefficient of the Modified H.A.L.F. Assessment Tool was 0.97 which was acceptable (Burns & Grove, 2001). For the evidence of internal consistency, the Cronbach alpha coefficient of the Modified

H.A.L.F. Assessment Tool was performed. The Cronbach alpha coefficient of the four sub-scales, Health, Attitudes toward Aging, Living Arrangement, and Finance, and total items were 0.79, 0.82, 0.85, 0.70, and 0.80, respectively. The alpha coefficient around 0.7 is considered an acceptable value for the instrument (Ferketich, 1990); therefore, the instrument was acceptably reliable.

The Barthel ADL Index and the Chula ADL Index.

These two instruments were modified by Jitapunkul and colleagues (1994) to assess disability among Thai older adults. Jitapunkul and colleagues tested the validity of both instruments among 703 Thai older adults living in Klong Toey Slum (Jitapunkul, Kamolratanakul, Chandraprasert, et al., 1994; Jitapunkul, Kamolratanakul, & Ebrahim, 1994). The study results showed that both instruments had the evidence of the validity and were suitable for using as tools for a functional disability survey among Thai older adults. According to Santayopas's study (1999), the internal consistency reliability was assessed by the Cronbach alpha coefficient in 25 Thai female elderly in Bangkok and was found to be 0.97. For this study, these two instruments were tested for the evidence of internal consistency reliability by using the Cronbach alpha coefficient with 20 Thai older adults living in Chiang Mai, Thailand. The Cronbach alpha coefficients obtained for the Barthel ADL Index, the Chula ADL Index, and the total scale was 0.75, 0.97, and 0.88, respectively. The Cronbach alpha coefficients of all instruments were acceptable.

Protection of Human Subjects

Before the data collection, an approval from the Human Experimental Committee, Human Science Research Institute, Chiang Mai University was obtained. All participants were informed about the purposes and the methods of the study. They were informed that participation in the study was voluntarily, so they could refuse to participate or withdraw from the study at any time without being penalized or losing any benefit either to themselves or to their relatives. Moreover, the participants were reassured that their responses would be kept confidential and their identities would not be revealed on research reports and publications of the study. Lastly, the participants who agreed to participate in the study were asked to sign a written consent (see Appendix N). For those who could not read or write, the researcher read the consent form for them and their thumbprints were used instead of signatures.

Data Collection Procedure

The prospective participants were contacted directly by the researcher. The researcher made an appointment with each prospective participant for a personal introduction and to inform participants about the aims and methods of study. The prospective participants were invited to participate in the study. They were informed that they could withdraw from the study at any time without any effects either to themselves or their relatives. After the prospective participants signed the consent form, the place and date for an interview were set. The prospective participants were informed that they would be interviewed either at home or at the health care center or

at the temple, wherever was most convenient for them. The data collection procedure in this study was divided into 3 phases as follows:

Phase 1: To explore and test the cultural sensitivity of the meaning and the components of elder abuse

Four focus group discussions were conducted to explore and test the cultural sensitivity of the meaning and the components of elder abuse among Thai older adults. Each focus group was comprised of 5-9 participants. The researcher conducted the discussion, which took about 60-90 minutes using the interview guideline. During conducting the focus group discussions, one research assistant took a note and the other recorded the discussion. All data from the focus group discussions were analyzed and used as a guideline to develop the instrument for screening elder abuse.

Phase II: To test the Elder Abuse Scale, the Modified H.A.L.F. Assessment Tool, the Barthel ADL Index, and the Chula ADL Index

The Elder Abuse Scale being developed was tested with 80 participants obtained by convenience random sampling method, while the Modified H.A.L.F. Assessment Tool, the Barthel ADL Index, and the Chula ADL Index were tested with 20 participants from the same group. The researcher interviewed the participants for about 30-45 minutes. The instruments were modified based on the feedback.

Phase III: To identify the psychometric properties of the Elder Abuse Scale and investigate the abusive prevalence, the risk factors for elder abuse, as well as the management strategies of elder abuse

The researcher structurally interviewed 304 participants by using the Demographic Data Sheet, the Elder Abuse Scale, the Life Satisfaction Scale, the

Modified H.A.L.F. Assessment Tool, the Barthel ADL Index, the Chula ADL Index, and a semi-structured interview guideline for asking about the management strategies of abusive situations. The interview took about 60-90 minutes. All data collection procedures were presented on Figure 3.

Data Analysis

1. Descriptive statistics, frequencies and percentages, were used to assess the demographic data and the prevalence of elder abuse, including physical abuse, psychological abuse, exploitation, neglect, and violation of rights.

2. Descriptive statistics, frequencies and percentages, were used to assess risk factors for elder abuse. Chi-square (χ^2) and univariate logistic regression were used to examine the relationships of each risk factor and elder abuse.

3. Multiple logistic regression was used to measure the association of the risk factors and elder abuse.

3. Content analysis was used to categorize the meaning and the components of elder abuse.

4. Descriptive statistics, frequencies and percentages, were used to assess the management strategies of elder abuse.

The significant level was set at 0.05 for all statistical analyses.

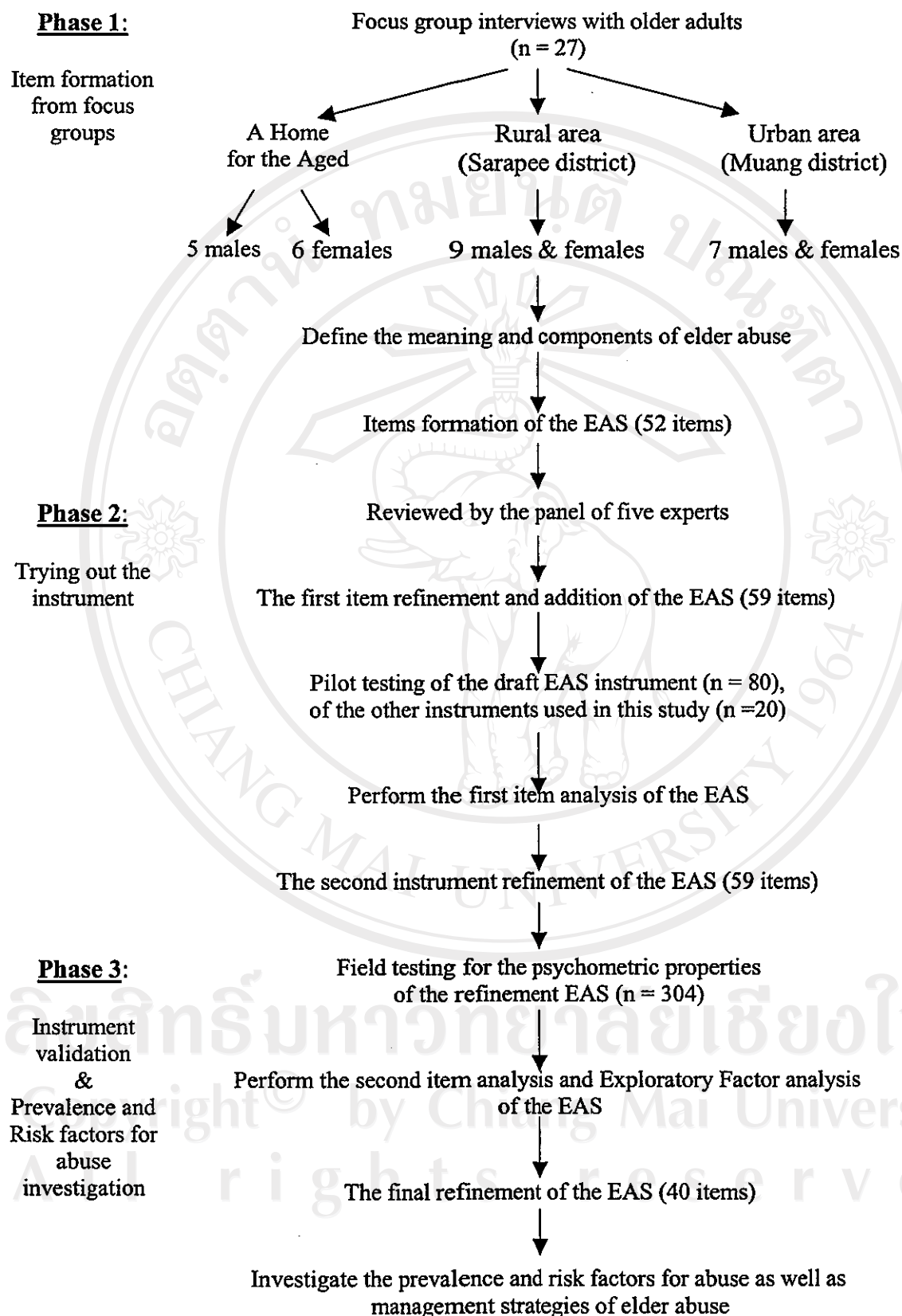


Figure 3. Flow chart of the data collection process.