

CHAPTER III

METHODOLOGY

RESEARCH DESIGN

This research, of cross-sectional survey design, aimed to study the relation between predisposing, reinforcing, and enabling factors and the dengue prevention and control behaviors of each family health leader in Tamode District, Phatthalung Province.

SCIENTIFIC METHOD

1. The target population was the family health leaders in Tamode District, Phatthalung Province.

2. The study population was family health leaders who had attended a one-day seminar on knowledge of dengue in Tamode District, Phatthalung Province. The seminar was attended by 1,155 family health leaders.

3. Calculation of sample size referred in Somrat Iertmahalit (1999)

Formula;
$$n = \frac{Z^2 pq}{d^2}$$

n = Sample size

Z = Standard deviation, normal level = 1.96, = specificity 95%

D = Maximum error, d = 5% or = 0.05

Q = Probability of event, q = (1-p) = 1 - 0.5 = 0.5

P = Population ratio, which was used to calculate the value of n at P
 = 0.5 or 50%

$$\text{Hence, the sampling size was: } n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$n = 385$$

As can be seen from the calculation result, the appropriate sample size represented in this study was at least 385 people.

SAMPLING TECHNIQUE

The sample group of 385 people was recruited as follows:

1. Categorizing people by their place of residence; Tamode District was composed of 3 Subdistricts, i.e. Maekaree, Tamode and Klongyai, while the study needed to cover every Subdistrict as far as possible. Normally, each Subdistrict had the following numbers of family health leaders: 405 in Maekaree, 353 in Tamode, and 397 in Klongyai, with a total of 1,155 people.

2. Setting out the population ratio in each Subdistrict by the total population of the whole district, using the formula:

$$\text{Population ration of each Subdistrict} = \frac{\text{Number of family health leaders in each Subdistrict who had already been trained}}{\text{Total number of family health leaders in district who had already been trained}}$$

Calculating the values:

$$\text{The population ratio in Maekaree Subdistrict} = \frac{405}{1,155} = 0.351$$

$$\text{The population ratio in Tamode Subdistrict} = \frac{353}{1,155} = 0.306$$

$$\text{The population ratio in Klongyai Subdistrict} = \frac{397}{1,155} = 0.344$$

Then, the product of the group sampling size (385 people) and the population ratio of each Subdistrict was shown as follows:

Maekaree subdistrict = $0.351 \times 385 = 135$ people; Tamode Subdistrict = $0.306 \times 385 = 118$ people; Klongyai Subdistrict = $0.344 \times 385 = 132$ people

3. Random sampling, such as systematic sampling, was used by the formula $N/n = k$; therefore $1,155/385 = 3$, while the sampling interval equaled 3. Next, a drawing was made between the number 1-3 and each number was accumulated by the value of 3 repeatedly until reaching the group sampling size of 385 people.

RESEARCH INSTRUMENTS

The instruments used for data collection were of 2 types (1) interview forms, which were produced by considering the conceptual detail, theories, and related research and (2) behavioral observation forms, which concerned the general family-health leaders' practices to eliminate mosquito larvae and breeding areas.

1. The interview form in this study comprised 6 parts, as follows:

Part 1: general information, which concerned demographic questions for the family health leaders, i.e. gender, age, marital status, religion, education level, occupation, average income per month, the number of family members, and the seminar about public health service knowledge.

Part 2: knowledge, understanding and attitudes towards disease and dengue prevention and control among the family health leaders, which was divided into 2 parts:

Part 1: knowledge, understanding of disease and dengue prevention and control was gathered using the interview forms, which were developed from the literature review and related research. The detail comprised the symptoms, causes of disease, infection, deadliness, prevention and control of disease, and basic treatment. The questions were open, with a total of 11 questions, and the scores for knowledge about dengue and the prevention and control of disease ranged between 0-11. Then, the data were analyzed by frequency analysis to find the mean value of \bar{x} , the standard deviation (S.D.) by using the knowledge evaluation criteria (Boontham Kitpredaborisuit, 1993), which was divided into 3 levels:

- High level of knowledge - means the total scores for knowledge about disease and dengue prevention and control ranged between 80-100 (8-11 points).
- Medium level of knowledge- - means the total scores for knowledge about disease and dengue prevention and control ranged between 60-79 (4-7 points).
- Low level of knowledge- - means the total scores for knowledge about disease and dengue prevention and control ranged between 0-59 (0-3 points).

Part 2: Attitude about disease and dengue prevention and control

The interview form, which was produced using the literature review and related theories concerned the beliefs and opinions expressed or practiced by the family health leaders regarding disease and dengue prevention and control, while the measurement scales used Likert methods, which comprised one of 5 possible choices per answer. The questions had both positive and negative meanings, while questions numbered 1, 2, 4, 5, 6, 7, 10, 11, 12, 14, 15, 18, 19, 21, 22 were positive, whereas the rest were negative. The scoring criteria were as follows (Boontham Kitpredaborisuit, 1993):

Positive Phrases		Negative Phrases	
Choices	Points	Choices	Points
Highly agree	5	Highly agree	5
Agree	4	Agree	4
Uncertain	3	Uncertain	3
Disagree	2	Disagree	2
Highly disagree	1	Highly disagree	1

The total number of questions numbered 22, while the scoring range for attitude to disease and dengue prevention and control was 22-110 points. The evaluation criteria were divided into 3 levels:

- Highly Positive – means the total score for attitude about disease and dengue prevention and control ranged between 73-110 points.

- Neutral – means the total score for attitude about disease and dengue prevention and control ranged between 37-72 points.

- Negative – means the total score for attitude about disease and dengue prevention and control ranged between 0-36 points.

Four experts approved the interview forms and the accuracy value was calculated as 0.824.

Part 3: Dengue prevention and control behavior

The interview form, which was produced from the literature review and related theories concerned dengue prevention and control behavior and the causes of ignorance

about practices. It used a total of 10 questions with 2 choices, while the causes of ignorance about practices included 4 question which was possible to chose more than one answer, and each answer equaled 1 point.

Choices	Points
Regular practice	1
Do not practice	0

The score range for dengue prevention and control behavior ranged between 0-10, and was divided into 3 levels:

- Good level – means the dengue prevention and control behavior ranged between 8-10 points.
- Moderate level – means the dengue prevention and control behavior ranged between 4-7 points.
- Poor level – means the dengue prevention and control behavior ranged between 0-3 points.

Part 4: The adequacy of resources for dengue prevention and control

The interview form for the adequacy of resources for the prevention and control of dengue was produced using the literature review, and applied the conceptual method for dengue prevention and control of the Division of Epidemiology, Ministry of Public Health, and dengue handbooks. The scoring measured the support or provision of resources that were used for dengue prevention and control, comprising mosquito net, container covers, and Abate sand. The analysis examined the criteria for adequacy of

material support, which means that the family health leaders had material available: mosquito net, Abate sand and container covers.

“Adequacy” meant that the interviewees must answer all 3 questions with “yes; the scoring criteria were set as adequacy = 1 point, and non-adequacy = 0.

Part 5: information perception about the disease and the prevention and control of disease and information resources.

The interview form was used to gather data about the information perception of the disease and the prevention and control of disease and information sources. The questions, which involved the information perception of dengue, particularly the causes of disease, the prevention and control of disease, the elimination of mosquito breeding areas, and information resources and media. The questions comprised 2 choices; none for information perception and having regular information perception, and by which ways. The scoring criteria had been set as no information perception = 0, and regular information perception = 1 point.

The questions about information sources could be answered using more than one answer. The scoring criteria were as follows: 1 point for any information source; and 0 points for no information source; for example, the information sources from broadcasting/voice online. If the answer was “yes” the score should be 1 point, with “no” = 0.

There were a total of 9 questions, with scores ranging between 0-9 points. The criteria for evaluate the information perception about disease and dengue prevention and control were divided into 3 levels:

- High level - means the total scores for information perception about disease and dengue prevention and control ranged between 8-9 points.
- Moderate level - means the total scores for information perception about disease and dengue prevention and control ranged between 4-7 points.
- Low level - means the total scores for information perception about disease and dengue prevention and control ranged between 0-3 points.

Then, the information sources were analyzed for percentage values and arranged in order of information source.

Part 6: The advice and the follow-up of staff in case of the spread of dengue, and seminar attendance or joint promotion of dengue prevention and control.

The interview forms were divided into 2 parts:

Part 1: follow-up of staff in case of the spread of dengue, which involved the causes of dengue, symptoms, and the prevention and control of mosquito breeding areas. It comprised 10 questions, with 3 choices each--no advice, advice once, advice more than once. The scoring criteria for advice were as follows: 0 points for never, 1 point for once, 2 points for more than once. Total test scores ranged between 0-20 points. The criteria for evaluating the follow-up of staff whenever the spread of dengue had taken place, was divided into 3 levels:

- High level - means the total scores for information perception about disease and dengue prevention and control ranged between 14-20 points.

- Moderate level - means the total scores for information perception about disease and dengue prevention and control ranged between 7-13 points.

- Low level - means the total scores for information perception about disease and dengue prevention and control ranged between 0-6 points.

Part 2: Seminar attendance or joint promotion of dengue prevention and control.

The interview form used questions (rating scale) with 3 choices and only 1 answer. The scoring criteria were as follows:

Choices	Points
More than one attendance	2
One attendance	1
No attendance	0

There were a total of 5 questions, with scores ranging between 0-10 points. The criteria for evaluating seminar attendance or joint promotion of dengue prevention and control were divided into 3 levels:

- High level - means the total scores for information perception about disease and dengue prevention and control ranged between 8-10 points.

- Moderate level - means the total scores for information perception about disease and dengue prevention and control ranged between 4-7 points.

- Low level - means the total scores for information perception about disease and dengue prevention and control ranged between 0-3 points.

2. The behavior observation forms concerned the general practices for disposing of larvae and mosquito breeding areas among the family health leaders. It comprised 8 questions concerning water containers for drinking water and unused objects. Then, the data were analyzed for percentage values and arranged in question order.

EFFICIENCY OF THE INSTRUMENTS

The following steps were used to gain approval for the interview form:

Content validity – the interview form was produced by studying textbooks, documents, and past research involving disease and dengue prevention and control. Then, the supervisor and another 4 experts provided suggestions to make it complete, before use with the sample group. The four experts who had taken part in this process were:

- Mr. Kamnung Sonkam, educational public health staff (Class 7), Chief of the Health Education Division, Public Health Service Office, Phatthalung Province.
- Miss Suparat Polpetch, educational public health staff (Class 5), Public Health Service Office, Tamode District, Phatthalung Province.
- Mr. Jerapan Janthap, educational public health staff (Class 5), Baankongrhamai Health Centre, Kongrha District, Phatthalung Province.
- Mr. Dolhakeam Salem, educational public health staff (Class 5), Baanthachhead Health Center, Tamode District, Phatthalung Province.

After approval by these experts and their supervisor, the researcher corrected the interview form, to clarify some parts of the detail, review some of the literature and resequence the order, as suggested.

2. Reliability – the researcher used the interview form with a total of 40 family health leaders in the area under the control of Thakway Health Center, Kaochaison Subdistrict, Kaochaison District, Phatthalung Province. These people had not been chosen for the sample group. Cronbach's alpha coefficient was used to analyze the reliability of the interview form, while the reliability of the interview form about attitude to disease and dengue prevention and control was 0.824.

DATA COLLECTION

1. The public health office in Tamode District and the chiefs of the health center in Tamode District were asked for the collaboration in data collection of the family health leaders in the area.

2. The researcher met the chiefs of the health center in Tamode District on their meeting days for collaboration and took the opportunity to explain the objectives and the details of data collection.

3. The researcher conducted data collection alone.

The stages of data collection were as follows:

3.1 Before interviewing the family health leaders, the researcher made a self-introduction to facilitate communication and then had moved on to the objectives

of the research. Next, the researcher collected data by questions and discussion on every topic until every question had been answered.

3.2 The researcher checked out the interview forms individually and added knowledge about disease and dengue prevention and control to the sample group.

DATA ANALYSIS

Data analysis employed a computer with SPSS for Windows (Statistical Package for the Social Sciences).

1. Descriptive statistics – quantitative data--age and income--were analyzed for frequency, percentage, mean and standard deviation. Other quantitative data--gender, education, occupation, and marital status—were analyzed for frequency, percentage, and predisposing, reinforcing and enabling factors. Dengue prevention and control behavior was analyzed for frequency, percentage, mean and standard deviation, as well as maximum and minimum values.

2. Statistical analysis – this was conducted to analyze the relations of predisposing s, reinforcing and enabling factors to dengue prevention and control behaviors by using of Pearson’s Product Moment Correlation Coefficient. Variables that were measured by interval scale and had improper data distributions were analyzed by Spearman Rank Test and Chi-square test.