CHAPTER III

RESEARCH METHODOLOGY

1. Research Design

This was a cross-sectional survey research, aimed to study preventive and control behaviors against DHF of primary school children in Chulaporn District, Nakohn Si Thammarat Province and the relationship of which with predisposing, enabling, and reinforcing factors. The data were collected from research will be conducted with primary school children in Chulaporn District, Nakohn Si Thammarat Province.

2. Target Population

The target population was 1,256 children who were in grades 4 to 6 in 21 schools in Chulaporn District, Nakohn Si Thammarat Province during the academic year 2003.

3. Sample

1. Sample Size

The number of the sample was calculated by using the following formula:

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

d = 0.05 or 5% (Allowable error)

P = proportion of the primary school children who had good preventive behavior for Dengue Hemorrhagic Fever. From the review literature of Chalud Klinubon, (1999: 80), 50% of their behaviors are in the good level.

q = (1- p) = 1 - 0.5 = 0.5

Z at 5% = 1.96

$$n = \frac{(1.96)^2 * 0.5 * 0.5}{(0.05)^2}$$

n = 385

Therefore, the sample size of this study was at least 385 cases.

2. Sampling Technique

The cluster sampling technique was used and the schools in Chulaporn District were divided into 4 clusters. Each cluster had similar areas, social characteristics, and occupations of parents. The steps of the selection process were:
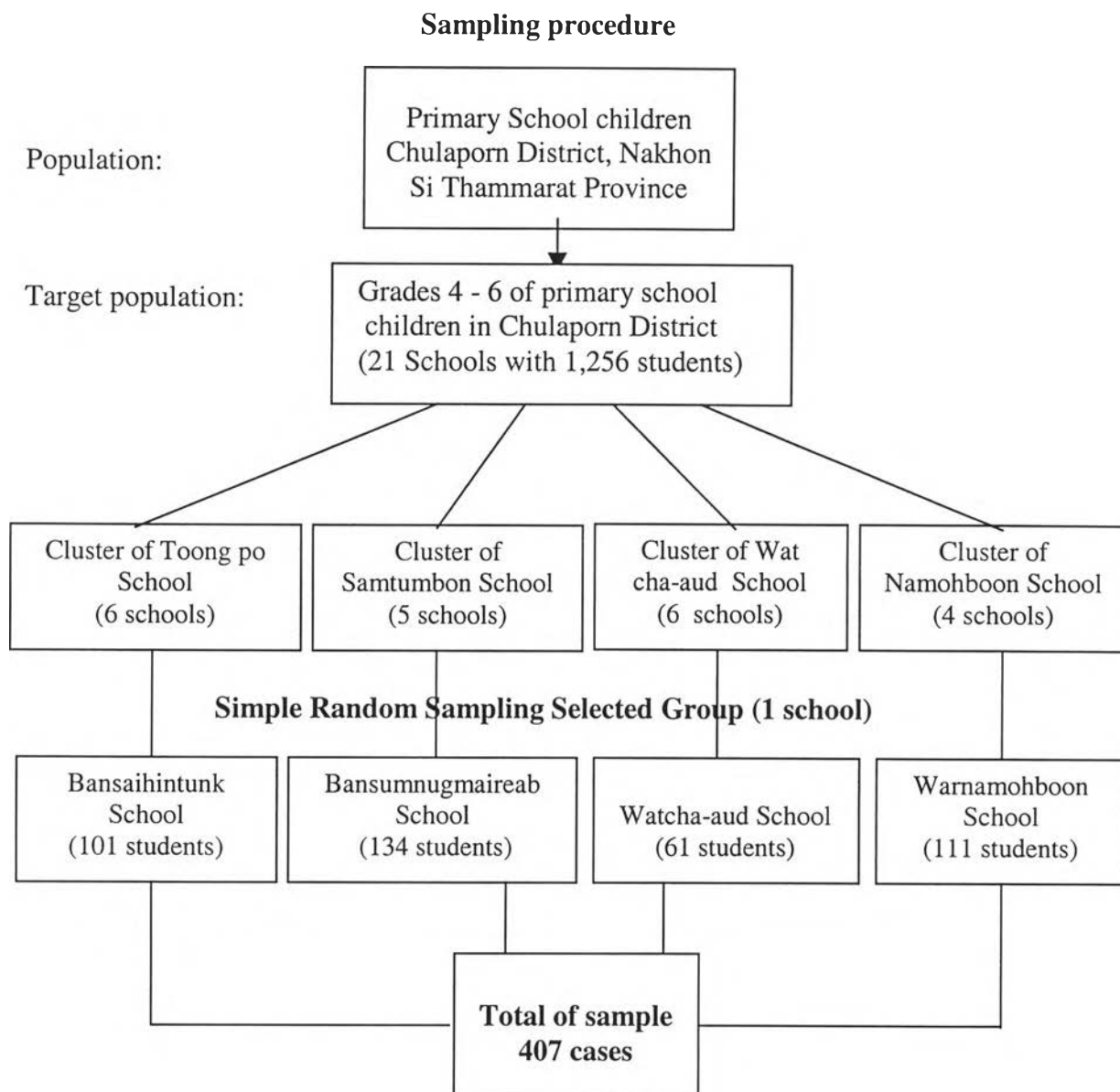
Sampling procedure

Figure 3 : Diagram of sampling scheme

4.   Research Instrument

A questionnaire comprised of 6 parts was constructed after the review of literature, the following;

Part 1: Socio–demographic characteristics of children and their parents consists of grade, gender, person who the children are living with, occupation and education level of fathers and mothers and parent's income.

Part 2: Questions concerning the school age children's knowledge of DHF regarding etiology, signs and symptoms, transmission, mosquito vector, treatment and care, and prevention and control for DHF. There were 17 multiple choice questions in this part and each question had 4 choice. A correct answer was given a 1 score and a 0 score was given for a wrong answer and the answer "Unknown". The scores were ranged from 0-17. After data collection, the scores was analyzed for frequency, mean and standard deviation (SD). Criteria of knowledge evaluation relied on the standards (Boontum Kitpreedakit, 1993), shown below.

80-100% (14-17 score)   = high level of knowledge about DHF

60-79% (11-13 score)   = moderate level of knowledge about DHF

0-59% (0-10 score)   = low level of knowledge about DHF

Four experts reviewed the questionnaire and checked it for validity and then it was field tested for reliability. The statistical method for reliability was Cronbach's alpha and the result was 0.7620.

Part 3: Attitude towards DHF in the aspect of prevention and control. The questions in this part concerned beliefs, feelings, and readiness to practice of the primary school children. The measurement was 3 rating scale. The primary school children could select only one choice from the three. There were both positive and negative questions in this part. The positive questions were numbers 1, 3, 10, 11, 14, 16, 17 and 18. The rest were negative questions. Criteria for scoring is:

Positive questions		Negative questions	
Choices	Score	Choices	Score
Agree	3	Agree	1
Not sure	2	Not sure	2
Disagree	1	Disagree	3

This part has 18 questions and the range of the scores of the attitudes towards the disease and prevention and control of DHF is 18 - 54 scores. There are 3 criteria for analysis:

Good level   meant the total score of the attitude towards the disease and prevention and control of DHF is 80 -100% of a total score (47 - 54 scores)

Moderate level   meant the total score of the attitude towards the disease and the prevention and control of DHF is 60-79% of a total score (40-46 scores)

Low level   meant the total score of the attitude towards the disease and prevention and control of DHF is less than 60% (18 - 39 scores)

Reliability of the questions in this part was done after the 4 experts validated it and the results were a score of 0.8206.

Part 4: Behavior in the prevention and control of DHF.

This part has 12 questions, which focused on the strategies that the students could practice for the destruction of or decrease in the number of breeding sites of the mosquito, the prevention and control or destruction of the larva by using various techniques, and individual prevention in households and schools. The criteria for scoring the questions were:

Item 1. The survey of Aedes mosquito's larva in stored water for drinking or use in household (4 scores). The criteria for scoring is shown below

Never observed	=	1 score
Observed, found larvae but did not destroy larvae	=	2 scores
Observed, did not find larvae	=	3 scores
Observed, found larvae, eliminated larvae, cleaned container	=	4 scores

Item 2. The observation of larvae in cement tanks or stored water container in bathroom (4 scores)

Never observed	=	1 score
Observed, found larvae but did not destroy larvae	=	2 scores
Observed, did not find larvae	=	3 scores
Observed, found larvae, eliminated larvae, cleaned container	=	4 scores

Item 3. The observation of larvae in water jars with cover sat home.

Never	=	1 score
Sometime	=	2 scores
Usually cover	=	3 scores
Every time	=	4 scores

Item 4. The observation and cleaning of discarded objects around household

(4 scores)

Never observed	=	1 score
Observed but did not take those objects away	=	2 scores
Observed but never found those objects	=	3 scores
Observed, found the objects and always disposed of them	=	4 scores

Item 5. Adding salt or washing powder to the plate under the cupboards at home (percentage equals number of plates adding chemical divided by total plates multiplied by 100) (5 scores)

Never observed	=	1 score
Added 1-25% of the number of those materials	=	2 scores
Added 26-50% of the number of those materials	=	3 scores
Added 51-75% of the number of those materials	=	4 scores
Added 76-100% of the number of those materials	=	5 scores

Item 6.

Item 6.1 Changing water in flower vases at home (percentage = number of flower vases the water was changed in, divided by total number of vases, multiplied by 100) (5 scores)

Never	=	1 score
Yes, 1-25% of those vases	=	2 scores
Yes, 26-50% of those vases	=	3 scores
Yes, 51-75% of those vases	=	4 scores
Yes, 76-100% of those vases	=	5 scores

Item 6.2 Change water in those plants pots at home (5 scores, same as item 6.1)

Item 7. Observed discarded cans at school (4 scores)

Never observed	=	1 score
Observed but never took those objects away	=	2 scores
Observed and never found those objects	=	3 scores
Observed, found the objects and always took them away	=	4 scores

Item 8. The observation of larvae in cement tanks or stored water containers in bathrooms at school (4 scores)

Never observed	=	1 score,
Observed, found larvae, but did not remove larvae	=	2 scores
Observed but did not find larvae	=	3 scores
Observed, found larvae, removed larvae and cleaned the container	=	4 scores

Item 9. Changing water in vases at school (2 scores)

Never	=	1 score
Yes	=	2 scores

Items 10-12. Sleeping under mosquito nets, screen net, or using mosquito repellents (3 Rating Scale)

Choice	Score
Regularly	3
Sometime	2
Never	1

The score in preventive and control behaviors against DHF of the sample cannot compared because of the answer of some subject in some items had the choice concern about did not have objects that was a good thing, did not has the risk factor of breeding sites. Therefore, the number of the items and a total score concerning behavior would not be equal. The score on preventive and control behavior of each subjects could be compared by adjusting the score in the same base (100) by multiplying that score by 100 before dividing by the total score of all items.

The score for preventive and control behaviors against DHF were ranged from 28 -100 and was divided into 3 levels by using the criterion standard, shown below.

Good   meant the total score of preventive and control behavior for DHF was 80 - 100% (85 -100 scores).

Moderate   meant the total score of preventive and control behavior for DHF was 60 - 79% (71 - 84 scores).

Low   meant the total score of preventive and control behavior for DHF was less than 60 % (28-70 scores).

Part 5: Sufficiency of resources for prevention and control of DHF

This part was adapted from the guidelines of the Department of Communicable Disease Control, Ministry of Public Health and a manual for DHF management (Department of Communicable Disease Control, 1998). The score was given by considering the availability, sufficiency and continuously of necessary resources for preventing and controlling the DHF that the students received from their parents, schools and other relevant agencies. This study focused on mosquito nets, screen nets, covers for all stored water containers, and Abate sand.

Data interpretation

1. Mosquito nets or screen net

Sufficient of mosquito net meant the subject family had adequate mosquito net screen which were in good condition all for everybody in the family.

2. Cover water container

Sufficient meant the answers would be in one of the following areas.

First   the subject had covers for all water jars and water containers at home and at school

Second   if there were not enough covers for water containers, other methods were needed for the elimination of mosquito larvae; cleaning - up container every week, putting Abate sand granules, or releasing larvivorous fish, both at home or school.

If the answer were not one of these choices, it was insufficient.

3. Abate sand

Adequate meant the answer had to be in one of the following 2 cases.

First   the subject had enough abate sand for elimination of mosquito larvae for the whole year both at home and school.

Second   if the subject had not enough Abate Sand for use throughout the year at home and at school, other methods were needed for the elimination mosquito larvae; cleaning - up container every week, or releasing larvivorous fish.

If the answer were not as these choices, it will be insufficient.

Summarization of the sufficiency of resources was:

Sufficient meant the subject had to have answered all 3 questions; if not it would be considered insufficient. The scores were:

Sufficient   =   1 score

Insufficient   =   0 score

Part 6.1 – 6.2: Reinforcement and social support from teachers and parents

This part concerned the prevention and control and the receipt of information and resources regarding DHF. Reinforcement and social support from teachers and parents include instructions, advice, and praise. Three rating scale were applied in this part, namely:

Choices	Scores
More than 1 time	= 2
Only once	= 1
None	= 0

There were 10 questions in each part. The scores were ranged from 0-20 into 3 levels:

High level   = the total score was 80 - 100% of a total score (16 - 20 scores)

Moderate level = the total score was 60 - 79% of a total score (12 - 15 scores)

Low level   = the total score was 0 - 59% of a total score (0 - 11 scores)

Part 6.3: Questions about accessing to information on prevention and control of DHF during the last semester. The questions regarding receiving information from persons and mass media.

5.   Reliability and Validity

Testing of the quality of tools (Validity and Reliability)

The tools were tested for quality by the following:

1.   Content Validity

The consideration of a thesis advisor and four experts for its correctness, appropriateness, and coverage of the contents reviewed the questionnaire for its validity. The four experts were:

Mrs. Chairat Pattanachareon, Health Academic level 9, Health Promoting and Development, Provincial Health Offices, Nakhon Si Thammarat Province

Mrs. Chomsuda Sungmanee, Disease Control Academic level 9, Prevention and Disease Control Office, Zone 11, Nakhon Si Thammarat Province

Mrs. Veena Thitiprasert, Policy and Plan Analyzes Officer level 8, Provincial Health Offices, Nakhon Si Thammarat Province

Mrs. Somchai Siriwan, Educational Supervisor level 7, Primary School Offices, Chulaporn District, Nakhon Si Thammarat Province

After the consideration of those experts and the thesis advisor, the researcher for clarity and appropriateness of the contents revised the questionnaire.

2.   Reliability

The questionnaire was field test for reliability before the real data collection was begun, with 30 primary school children of grade 4-6 of Bantoongbok School, Tumbon

Namohboon, Chulaporn District, Nakhon Si Thammarat Province. This school was selected, as it is not the sample of this study. Cronbach's alpha coefficient was applied to measure reliability, and the score was 0.7690 in part concerning knowledge of the disease and prevention and control of DHF and 0.8206 for the attitude of the students towards the disease and the prevention and control of DHF.

6. Data Collection

1. An official letter was sent from the District Health Offices of Chulaporn District to the head of the primary school's office at Chulaporn District and 4 school administrators that were used in the random sampling for this study, to request their prior approval to conduct the survey. These 4 schools were: Watnamohboon School, Bansumnagmaireab School, Wat Cha Aud School, and Sai Hin Tung School.

2. Cooperation was requested from health education teachers, homeroom teachers, and students in grades 4-6, to inform them of the objectives and details of this study and make appointments for data collection.

3. Data collection, the researcher collected the overall data. One to two classrooms were assigned to answer the questions at the same time and they had to state real data without copying the answer. The steps were as follows:

    3.1 Before answering the questions, the researcher introduced him self to make him recognizable. After that, the objectives and instructions were stated regarding the details and then allowed them to ask questions on any part they were unclear about.

3.2 In the beginning, the researcher explained each item until all items had been covered and then the student began answering the questions. (They were allowed a 5-10 minute break by the researcher, and relaxed with some funny activities after answering part 3).

3.3 The researcher checked for completeness of each answer and then gave the answers to the questions on knowledge regarding the disease and prevention and control of DHF to help them increase their knowledge on the subject.

7.   Data Analysis

After collecting the data, all items were given codes, rechecked, and analyzed by using the computer program and set a significance of 0.05. The statistic were used in this study as the following:

1. Descriptive Statistics were used to analyze the characteristics of the study group such as, gender, predisposing, enabling, and reinforcing factors and preventive and control behaviors against DHF. The descriptive statistics were used on frequencies, percentages, mean, standard deviation, and maximum and minimum rates.

2. Inferential Statistics were used to summarized data for determine association between each variable and preventive and control behaviors against DHF among primary school children, as shown below.

2.1   Predisposing factors were:

- Grade level of primary school children and preventive and control behaviors against DHF by using the One -way ANOVA.

- Gender of primary school children, occupation of fathers, and preventive and control behaviors against DHF by using the t-test.

- Age, knowledge about DHF, attitude toward DHF, and preventive and control behaviors against DHF by using the Pearson's Product moment Correlation Coefficient.

2.2   Enabling factors were;

- Income of parents and preventive and control behaviors against DHF by using the Pearson's Product moment Correlation Coefficient.

- Sufficiency of resources and preventive and control behaviors against DHF by using the t - test.

2.3   Reinforcing factors

- Reinforcement from the teachers about prevention and control of DHF and preventive and control behaviors against DHF by using the Pearson's Product moment Correlation Coefficient.

- Reinforcement from the parents about prevention and control of DHF and preventive and control behaviors against DHF by using the Pearson's Product moment Correlation Coefficient.