



## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.1. RESEARCH DESIGN:

A cross-sectional, analytical study was carried out to ascertain nutritional status in primary school children at aged 9-10 years and association between overweight and obesity of children and potential related factors such as gender, number of children in family, number of people in the family, occupation of mothers, education level of mothers, income, KAP of mother, physical activities, knowledge and attitude of children.

#### 3.2. SITE OF STUDY

This study was carried out in 6 primary schools, in Thainguyen City, Vietnam.

Thainguyen is located in the northern part of Vietnam. It is about 70 kilometers from Hanoi. Thainguyen is a mountainous region, in the central midland of the North of Vietnam. This city is the traffic exchange point between Hanoi, the capital of Vietnam and the border provinces in the north. The population is around 1 million. In the last 15 years, of economic reforms have occurred in Vietnam, Thainguyen has achieved an annual economic growth rate of 10%. Thainguyen will become a center of economy and culture in the northeast area of Vietnam.

### 3.3. POPULATION AND SAMPLE

#### The study population

The study population is primary school children aged 9-10 years and their parents, in Thainguyn City, Vietnam.

#### Sample size and sampling technique

**Sample size:** Sample size estimation was determined by the following formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

(Source: Cochran, W.G. 1963. Sampling techniques, 2<sup>nd</sup> Ed., New York: John Willey and Sons, Inc.)

n: sample size

Z: reliability of coefficient based on level of confidence

Z= 1.96 (with confidence interval 95%)

p: estimated proportion rate

p =.06 (Estimated proportion of overweight is 9%) by previous study Nguyen T.H. (2000)

d: Precision difference

d= 0.03

$$n = \frac{1.96^2 \cdot .09 \cdot .91}{.03^2} = 350 (\cong 400)$$

#### **Sampling method:**

- Multistage sampling method was applied for data collection. There were 33 primary schools (15 central primary schools, and 18 suburb primary schools).

- First stage, of sampling focused on selection of school where 3 schools out of 15 central primary schools and 3 schools out of 18 suburb primary school. Next, from the 5 grades in primary school (grade1, 2, 3, 4, and 5); one class from grade 4 and grade 5 was selected because knowledge of children in grade 4 and 5 may be at the same level and they are mature enough to answer questionnaire.

- All children in the selected classes were recruited into the study. There are 35-40 children in one class; therefore from the 6 schools there were 460 children plus their mothers who were invited to participant in the study.

Appendix A describes sampling scheme.

### **3.4. DATA COLLECTION**

#### **3.4.1. DATA COLLECTION INSTRUMENTS**

##### **(1) IDENTIFY NUTRITION STATUS IN CHILDREN**

Anthropometric measurements of weight, height waist circumference and hip circumference were done by the research team using weighing scale, height scale waist circumference and hip circumference. After the measurements of weight and height, the primary data were entered in to the recording form together with their age and gender. The degree of nutritional status was derived using a BMI reference

(2) IDENTIFY PHYSICAL ACTIVITIES, KNOWLEDGE ATTITUDE OF CHILDREN AND MOTHER'S KNOWLEDGE, ATTITUDE AND PRACTICE.

-For data collection of Knowledge, attitude and practice, structured questionnaires were used. The questionnaires were prepared in English and translated from English to Vietnamese.

*For parents,*

- The questionnaires composed of 4 parts, namely
  - + Part I: Characteristic of children family
  - +Part II: Mothers' practice
  - +Part III: Mothers' knowledge
  - +Part IV: Mothers' attitude

*For children,*

- The questionnaires composed of 4 parts, namely
  - + Part I: General characteristic of children
  - + Part II: Physical activities
  - +Part III: Children's knowledge
  - +Part IV: Children's attitude

### 3.4.2. THE PROCESS OF DATA COLLECTION

**Preparation phase:** The activities were as follows

- Permission to conduct the study was obtained from the Director of Provincial Health Office and Director of primary schools. The Director of Provincial Health Office and myself solicited a group of medical doctors (10 data collectors) to perform physical examination and to interview school children. Two pediatricians who worked in Thainguyen hospital were invited to conduct physical examination and 8 medical doctors in Thainguyen Medical College were invited to interview the children and their mothers. Data collectors were trained on examination, interview skills, and managing data. All the collectors went to their allocated schools.

**Data collection phase:**

Data were collected from 6 primary schools during the period 10<sup>th</sup> January to 7<sup>th</sup> February 2004.

In this phase the following actions were taken:

- Physical examinations of the school children and their mothers
- Interview sessions with mothers and children
- Arranging the examination area and interview: Director of each school prepared 2 rooms, 1 for interview and 1 for physical examination.

- Instruments for physical examination:
  - Weighing scale and height scale to measure weight and height
  - Measuring tape to measure hip circumference and waist circumference
  - Structure questionnaire to collect information about socio-demographic, attitude knowledge and practice.
  
- \* Children were examined in the room with full light. The weight, height, waist and hip circumference in morning of the children were measured in the morning. After physical examination they were interviewed.
  - Mothers were measure weight and height in afternoon before interview
  
- Interview section: Face to face interview school children and their mothers by data collectors.
  
- Eight trained data collectors used structure questionnaire to interview school children and their mothers then fill in questionnaire form. Questions were asked by using simple language for children.

### **3.5. DATA PROCESSING AND ANALYSIS**

#### **(1). DATA PROCESSING:**

After collecting data, it was coded and entered by EPINFO 6.04. The data were cleaned and exported to SPSS 10.0 analyzed.

## (2). SCORES FOR QUESTIONNAIRES

### QUESTIONNAIRE FOR CHILDREN

#### (1). Physical activities of children

There were 7 questions about physical activities of children. The physical activities dealt with time in minutes of vigorous and moderate intensity per week and time to walk to school. In addition, MET energy expenditure was calculated by as duration x frequency per week x MET intensity. According to Cora et al. may be MET estimated as follows

Activity Domain	Activity type or intensity	Self- report pace	MET estimate
Short format	Vigorous	8	
	Moderate	4	
	Walking	3.3	

Source: 3 Carlos etal (2002). Annals of Epidemiology Volume 12, Issue 8, November 2002, pages 543-552.

#### (2). Knowledge of children

In scoring for knowledge, a “1” was given for correct answer and “0” for a wrong answer. There were 7 questions on knowledge and total mark was 7. The level of knowledge was classify as following

Good  $\geq 6$

Poor  $<4$

## (3). Attitude of children

In the part on attitude, there were 6 questions. Scoring for attitude a “1” was given for correct answer and “0” for an incorrect answer. Therefore the total mark is 6. The level of attitude was classify as follow

Good  $\geq 5$

Poor  $< 5$

## QUESTIONNAIRE FOR PARENTS

## (1). Practice of mothers

Among 8 questions about practice of mothers with 10 items, for each item “1” was given for correct answer and “0” for a wrong answer. Therefore total score is 10. The level of practice was classified as follow

Good  $\geq 8$ ;

Poor  $< 8$

## (2). Knowledge of mothers

Among 9 questions about knowledge of mothers, there were 2 important questions that were given 2 marks. For other questions “1” was given for correct answer and “0” for a wrong answer. Therefore total score is 11. The level of practice was classified as follow

Good  $\geq 7$

Poor  $< 7$

## Attitude of mothers

Among 8 questions about attitude of mothers, there was an important question about physical appearance that was given 3marks. For other questions “1” was given for



correct answer and “0” for a wrong answer. Therefore total score is 10. The level of practice was classified as follow

Good  $\geq 8$ ;

Poor  $< 8$

### **3.6. VARIABLES OF THE STUDY**

#### **INDEPENDENT VARIABLES**

##### **- Children:**

+ General characteristics: gender, age, and position in the family

+ Physical activities, knowledge and attitude of children

##### **- Parents**

+ Socio demographic characteristics: Age, education, occupation, income, family size, family type, BMI of parents.

+ Knowledge, attitude and practice of parents

#### **DEPENDENT VARIABLES**

1. Continuous variable: BMI

2. Dichotomous variables for overweight and obese versus normal

### **3.7. DATA ANALYSIS:**

- In order to determine the prevalence of obesity and overweight in children descriptive statistic such as frequency and percentage was used.

- Characteristic of family (mother's education, occupation, age, family size, family income, external or nuclear family) and characteristic of children (children's age, gender, and position in the family) was analyzed by descriptive statistic by mean, frequency, SD, proportion.
- In order to know the relationship between nutrition status of children and knowledge, attitude and practice of mother, bivariate Chi-square and correlation tests were used.
- In order to obtain the relationships between nutritional status of schoolchildren and mother's education, family size, family income, mother's occupation, and BMI of parent, bivariate Chi-square and correlation tests were used.
- Finally, multiple logistic regression analysis was performed to evaluate relative importance among the independent variables. The dependent variable was presence of overweight or obesity (value 1, in comparison to normal nutritional status, value 0) Independent variables included all nine variables that showed statistically significant or marginally significant associations ( $p < 0.10$ ) in bivariate analyses.

### **3.8. VALIDITY OF INSTRUMENTS**

Weighing scale was obtained by using a Beam balance "Tanita" weigh scale (Japan) with a precision of 0.1 kilogram (kgs)

The balance was placed on a hard flat surface, and checked for the zero-balance before each measurement. The subject stood unassisted in the center of the platform, and was asked to look straight forward, standing relaxed and still. The subjects wore school uniforms, bare footed. Body weight of the children was recorded to the nearest 0.1 kg

Height scale: height was measured by Microtoise (UNICEF, Copenhagen, Denmark), which measured up to two meters. Children wore school uniform during measure but shoes and socks were not worn.

When measuring height, the subject stood straight with the head positioned such that the Frankfurt plane is horizontal, feet together, knees straight, and heels, buttocks and shoulder blades in contact with the vertical surface of the anthropometer or wall. Subjects were asked to take a deep breath and stand tall to aid the straightening of the spine. Height was recorded to the nearest millimeter.

Only one weighing scale and one height scale were used to measure the weights and height of all subjects. The machine was standardized everyday in the morning before measurement.

Measuring tape: using elastic tape (made in Vietnam medical equipment company)

Waist circumference: Subjects should be stand erect with abdomen relaxed, arms at the sides, feet. To perform of waist measurement, an elastic tape is applied around the abdomen about level of the umbilicus. When subjects breathe out at the same time measurement. The reading is taken to the nearest centimeter.

Hip circumference: The measure was taken at the point yielding the maximum circumference over buttocks.

Two pediatricians were invited to measure weight, height, waist and hip circumference.

### **3.9. ETHICAL CONSIDERATIONS:**

Since this study was conducted among primary school, verbal agreement was obtained before from school authorities, children, and parents for data collection. Only those who consent to participate were enrolled for the study. The respondent has the right to feel free to stop the interview.

### **3.10. LIMITATIONS:**

- Subjects of this study are children ages 9-10 years in primary schools. Therefore the results could not be representative for entire children in primary schools.
- This study merged central and suburban schools. Therefore the differences between central and suburban were not given.
- In the part of physical activity, in order to know the duration of vigorous and moderate physical activities, the questionnaire cited only some common physical activities from many activities; therefore results may have some bias.
- The time limited so this study just focuses on quantitative study.