

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

This research was non experiment and quantitative research with cross sectional design.

B. Research Population

Populations of this research were overweight students as many as 42 persons in SMA Muhammadiyah 3 Yogyakarta.

C. Research Sample

Samples of this research were chosen with purposive method. Inclusion criteria include:

1. Less than 20 years of age.
2. Body mass index is more than 95th percentile as overweight classification for adolescent.
3. Willing to be participants and sign the informed consent.

Exclusion criteria are also limited the sample, they include:

1. Delay to be participants
2. Having illness

Body weight and height of 743 students were measured by equal and microtoise. Overweight status was determined by BMI for age percentiles. Out of

female (n=19 ; 45.24%). However, only 30 students matched the inclusion and exclusion criteria.

D. Research Site and Setting

This research was conducted in SMA Muhammadiyah 3 Yogyakarta on April 2010.

E. Research Variables

1. Dependent variable

Dependent variable of this research was blood pressure.

2. Independent variable

Independent variable of this research was waist circumference.

3. Confounding variable

Confounding variables in this research were categorized into controlled confounding variables and non controlled confounding variables. Controlled confounding variables were age, status of smoking, exercising, speaking, and meal. Whereas, non controlled confounding variables were genetic and stress.

F. Operational Definitions

1. Overweight is a circumstance in which body mass index is more than 95th percentile. Status of overweight is determined by the BMI for age chart

BMI, Body weight, body height, and age will be performed as ratio scale, while gender will be performed as nominal scale.

2. Waist circumference is result of measurement in which the subject was standing up with feet distance as long as 25-30 centimeters without shoes. Waist circumference was taken horizontally at the mid-point between the lower costal border and the top of the iliac crest at the end of a normal expiration. The measurement of waist circumference uses measuring tape (accuracy 0.1 cm). The result was performed as ratio scale.
3. Blood pressure is the force originating when the heart's pumping pushes the blood against the walls of the blood vessels. Their stretching and contraction help maintain blood flow. It is usually expressed as two measurements. They are systolic blood pressure and diastolic blood pressure. Systolic blood pressure indicating the pressure when the heart is actually pumping. Diastolic pressure is when the heart is filling up with blood. The pressures are expressed in millimeters of mercury (mmHg) by using manual sphygmomanometer. Blood pressure will be performed as ratio scale.
4. Do not smoking is defined as never smoking or do not smoking during the research.
5. Meal as compounding variable is defined as meals which are contributing to hypertension such as alcohol, coffee, and meat. This compounding variable was controlled by an interview to assess whether the sample eats those kinds of meals within 30 minutes of blood pressure measurement

6. Exercising which influences the result of blood pressure measurement such as sport and run were involved to compounding variable. This variable was controlled by ask the samples to taking rest by sitting as long as 30 minutes before blood pressure measurement.
7. Speaking which influence the result of blood pressure measurement was defined as saying something when blood pressure was measured. This variable was controlled by forbids the subjects to speak when blood pressure was measured.

G. Research Instruments

1. Equal to measure body weight.
2. Microtoise to measure body height.
3. Body Mass Index (BMI) for children and adolescent is an index of weight for height, calculated as $\text{weight in kg}/(\text{height in meter})^2$.
4. Measuring tape to measure waist circumference.
5. Manual sphygmomanometer and stethoscope to measure blood pressure.
6. Observation form

H. Method of Collecting Data

1. Type of Data

Data of this research are collected by primary data include:

- a. Date of birth
- b. Status of smoking, diet, and exercise

c. Body weight and height

- d. Body mass index
- e. Waist circumference
- f. Blood pressure.

2. Data Collection

a. Preparation

- (1) Conducting an introduction survey and personal approaching to the Head Master of SMA Muhammadiyah 3 Yogyakarta.
- (2) Asking for research license from Pimpinan Muhammadiyah Daerah.

b. Implementation

- (1) Students were weighed and done height measurement.
- (2) Overweight status was determined using body mass index-for-age percentiles.
- (3) Giving informed consent to the overweight students. Student who had willingness to participate and signed the informed consent were involved to this research.
- (4) Waist circumference measurement by measuring tape and blood pressure measurement with manual sphygmomanometer were conducted.

I. Data Analyze

Data of this research were analyzed descriptively and analytically.

Descriptive analysis was used to characteristics of research subjects included mean

and standard deviation. Correlation between independent and dependent variable was analyzed by Pearson correlation.

J. Research Difficulties

There was difficultness in research implementation. Since the research was conducted in school, time in research implementation was limited by school activity.

K. Research Ethic

Overweight students who were matched to research criteria signed an informed

consent form. The informed consent consisted of research mechanism