

## Chapter 1

### INTRODUCTION

#### 1.1. Background

Non-communicable diseases (NCDs) such as diabetes, cardiovascular diseases, and cancer remain as the leading cause of death worldwide. Unfortunately, young people or adolescents are also affected with this kind of diseases. Adolescents are not immune towards NCDs and the prevalence of these diseases are increasing globally. More than 25% of adolescents aged 15 years old have a sign of diabetes, 70% of adolescents aged below 20 years old have at least one risk factor for cardiovascular diseases, and 5% of adolescents aged below 15 years old have cancer (John Hopkins Education, n.d.). Factors affecting NCDs are associated with behaviors that are established during adolescence, including the use of alcohol and tobacco, sedentary lifestyles, unhealthy diets, and nutritional status. During adolescence, there are dramatic changes both in physiological and psychological aspects, that is why it is the most critical periods of life (Esmailzadeh and Ebadollahzadeh, 2012). Moreover, in this period, individuals are making choices that will affect their future life, including their future nutritional status and a healthy life (Mitchell, 2019).

Two major risk factors associated with non-communicable diseases are physical inactivity or sedentary lifestyle and obesity (González, Fuentes and Márquez, 2017). Physical activity is any bodily movement produced by skeletal muscles that result in caloric expenditure. The intensity of physical activity will result in many health benefits such as improving nutritional status, improving cardiorespiratory, and muscular or physical fitness (Welk, Morrow and Saint-Maurice, n.d.). It is reported that in 2010, 81% of adolescents worldwide were insufficiently active (Wattanapisit et al., 2016). Whilst in Indonesia, about 48.2% of adolescent were insufficiently active. This physical inactivity could lead to various diseases (Nurali, 2019). According to the 2014 Global Status Report on NCDs, physical inactivity contributes to 3.2 million deaths and 69.3 million disability-adjusted life years

(DALYs) each year (Physical Activity, n.d.). Being an individual that physically active is essential for good health throughout life. Regular and adequate level of physical activity will reduce the risk of non-communicable diseases such as cardiovascular diseases, diabetes, stroke, and cancers (WHO EMRO, n.d.). Hence, the World Health Organization (WHO) recommend that children and adolescents aged 5-17 should have at least 60 minutes of physical activity per day (WHO, 2018).

As mentioned before, physical activity provide health benefits and it is also related with physical fitness. The intensity of physical activity will improve individual's physical fitness (Welk, Morrow, and Saint-Maurice, n.d.). As the amount and intensity of physical activity increase, it will also increase the physical fitness. There are several definitions of physical fitness, however, it can be concluded as a set of attributes that people have or achieve that relates to the ability to perform physical activity (Plowman and Meredith, 2013). About 46.8% adolescent aged 11-13 years old have inadequate physical fitness, which might promote an adverse health effects such as the NCDs in the future life (Rosmalina and Permaesih, 2010).

The increasing prevalence of non-communicable diseases among adolescent is very critical. Moreover, this diseases might develop during this stage of ages. These emerging problems might be influenced by nutritional status, level of physical fitness and physical activity of the adolescent (Esmailzadeh and Ebadollahzadeh, 2012). It is necessary to know the importance of how fitness and activity related to nutritional status among youth. Thus, assessing nutritional status, physical fitness, and physical activity in school adolescents is essential to primary prevention of non-communicable diseases as well to maintain a healthy lifestyle and behaviour among adolescents.

## **1.2. Objectives**

The objective of this study was to assess the nutritional status, physical activity, and physical fitness and their relationship among adolescents.

### **1.3. Benefits of the Study**

The findings of the study would provide benefits to:

- The body of knowledge
  - This study gives information about physical activity, physical fitness, and nutritional status relationship in Indonesian adolescents and to add the body literature.
- The research
  - Since the study of physical activity, physical fitness, and nutritional status and their relationship is rarely discussed in Indonesia, this finding could be used for supplementary literature for further research.
  - This study could be used for other researcher to expand the use of the methods or assessment.
- The society
  - This finding can contribute to the policy development for increasing physical activity and physical fitness among adolescent.