

# Non-Communicable Diseases in Indonesia: Prevalence and Risk Factor

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**Abstract.** Non-Communicable Diseases (NCDs) were the leading causes of death in Indonesia. According to the 2018 data from WHO – NCD Country Profile, the proportional mortality in Indonesia were cardiovascular diseases (35%), cancers (12%), chronic respiratory diseases (6%), diabetes mellitus (DM) (6%), injuries (6%), other NCDs (15%), and communicable maternal, perinatal, and nutritional conditions (21%). The aim of this study was to find out the prevalence of NCDs of each province in Indonesia and physical inactivity as a risk factor of NCDs. It was descriptive study based on Basic Health Research 2013 and 2018. Data 2018 revealed that most of NCDs such as stroke, cancer, and DM increased from 2013. The proportion of physical inactivity in Indonesia increased from 26.1% in 2013 to 33.5% in 2018. Perhaps there was association between physical inactivity and the incidence of NCDs. Further study was needed to analyze the risk factors associated with NCDs.

**Keywords:** Non-Communicable Diseases, Prevalence, Risk Factor, Physical Activity, Basic Health Research.

## 1 Introduction

Non-Communicable Disease (NCD) was a chronic disease, not human to human transmitted, had long duration and normally grows slowly. NCDs had become the leading cause of death globally at this time [1–3]. According to the 2018 data from WHO – NCD Country Profile, the proportional mortality in Indonesia were cardiovascular diseases (35%), cancers (12%), chronic respiratory diseases (6%), diabetes mellitus (DM) (6%), injuries (6%), other NCDs (15%), and communicable maternal, perinatal, and nutritional conditions (21%) [4]. Based on data from Basic Health Research 2018, most of NCDs such as stroke, cancer, and DM, showed an increasing trend compared to the previous report in 2013.

Cancer was the growth of uncontrollable cells/tissues [5,6]. They continually grow, immortal. Cancer cells can penetrate to the surrounding tissues and can form subset [4,7,8]. The incidence rate of cancer in Indonesia (136.2 / 100,000 population) ranks 8th in Southeast Asia, while in Asia it is 23rd. The highest incidence rate in Indonesia for men was lung cancer, which is 19.4 per 100,000 population with an average mortality was 10.9 per 100,000 population, followed by liver cancer at 12.4 per 100,000 population with an average death rate of 7.6 per 100,000 population. While the highest incidence rate for women was breast cancer, which is 42.1 per 100,000 population with an average death rate of 17 per 100,000 population followed by cervical cancer at 23.4 per 100,000 population with an average death rate of 13.9 per 100,000 population [9].

Stroke was disease to the brain causing local and/or global nerve malfunction, attacking unexpected, progressive and fast [10–12]. This disturbed nerve function was due to disruption to non-traumatic brain blood circulation [13,14]. It caused symptoms of: numbness of face or limbs, trouble speaking, unclear speaking, trouble understanding, blurred vision, etc [4]. The highest rates of stroke were observed in Mongolia (222.6/100,000 person-years) and Indonesia (193.3/100,000 person-years), followed by Myanmar and North Korea [15].

DM was a metabolic disease constituting a group of symptoms suffered by someone as a result of high blood sugar above normal rate [16–18]. This disease was due to disturbed sugar metabolism resulting from lack of insulin in terms of absolute and relative [19–21]. There were 2 types of DM, to wit: Type I/Juvenile Diabetes, which normally attacks since juvenile period and Type II, i.e. diabetes attacking at adult ages [4].

The rise in NCD was mainly driven by four main risk factors: tobacco use, physical activity, harmful alcohol use and unhealthy diet [22]. Strenuous physical activity was physical activity carried out for > 3 days per week and MET minutes per week > 1500 (MET minute value for strenuous physical activity = 8). MET was a unit of energy expenditure and was used to measure physical activity in minutes [23]. MET minute was a unit used to measure the volume of an individual's physical activity. Moderate physical activity was moderate physical activity carried out for > 5 days a week with an average length of activity > 150 minutes a week (or > 30 minutes per day) [23].

Basic Health Research, showed the proportion of physical inactivity in Indonesia is 26.1% in 2013 and 33.5% in 2018. In 2013, there were 22 provinces whose population's physical activity was classified as less active with a proportion above the national average, including in Lampung Province which is 33.9% and 21 provinces in 2018 [4]. Based on the data above, the aim of this study was to find out the prevalence and risk factor of NCDs.

## **2 Methods**

This study was descriptive study based on Basic Health Research 2013 and 2018. We analyzed the prevalence of cancer, stroke, and diabetes as well physical inactivity in 2018 compared to 2013. We used prevalence (‰ and %) to describe the magnitude of NCDs and physical inactivity in Indonesia and each province from Basic Health Research 2013 and 2018.

## **3 Result and Discussion**

### **3.1 Prevalence of Cancer by Province (‰)**

Based on Basic Health Research data, the prevalence of cancer in Indonesia showed an increase from (1.4‰) in 2013 to (1.79‰) in 2018. The highest cancer prevalence in 2018 was in DI Yogyakarta province with (4.86‰), followed by West Sumatra with (2.47‰) and Gorontalo with (2.44‰). The lowest cancer prevalence was West Nusa Tenggara Province with (0.85‰) in 2018 [23].

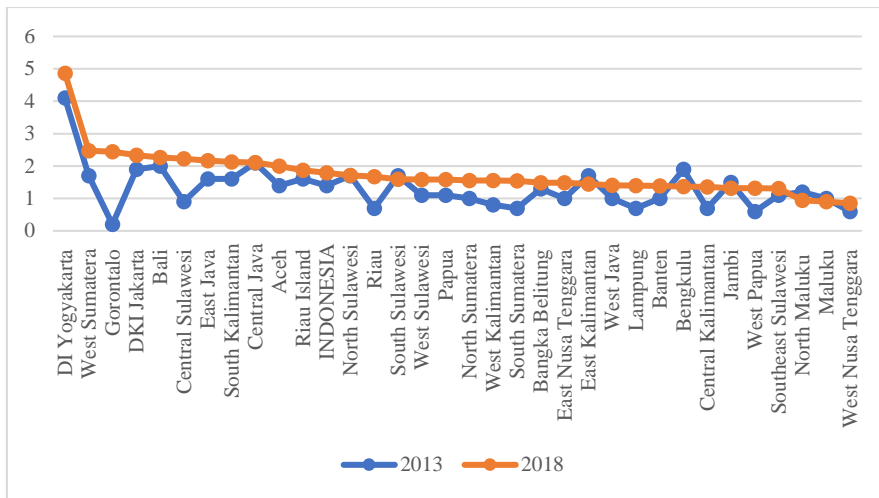


Fig 1. Prevalence of Cancer by Province (%)

### 3.2 Prevalence of Stroke by Province (%)

Based on Basic Health Research data, the prevalence of stroke in Indonesia showed an increase from (4.5%) in 2013 to (10.9%) in 2018. The highest stroke prevalence in 2018 was in East Kalimantan province with (14.7%), followed by DI Yogyakarta (14.6%) and North Sulawesi (14.2%) in 2018. The lowest stroke prevalence in 2018 was Papua with (4.1%) in 2018 [23].

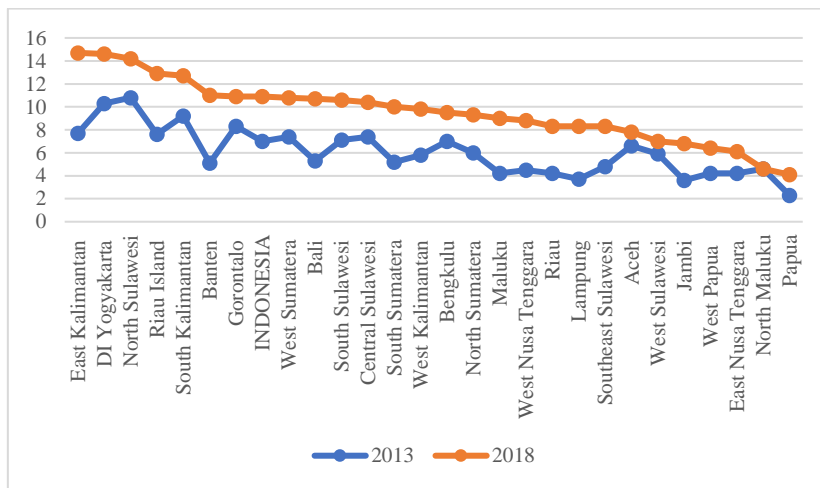


Fig. 2. Prevalence of Stroke by Province (%)

### 3.3 Prevalence of DM by Province (%)

Based on Basic Health Research data, the prevalence of DM in Indonesia showed an increase from (1.5%) in 2013 to (2%) in 2018. The highest DM prevalence in 2018 was in DKI Jakarta province with (3.4%), followed by DI Yogyakarta with (3.1%) and North Sulawesi province with (3%) in 2018. The lowest DM prevalence was East Nusa Tenggara province with (0.9%) in 2018 [23].

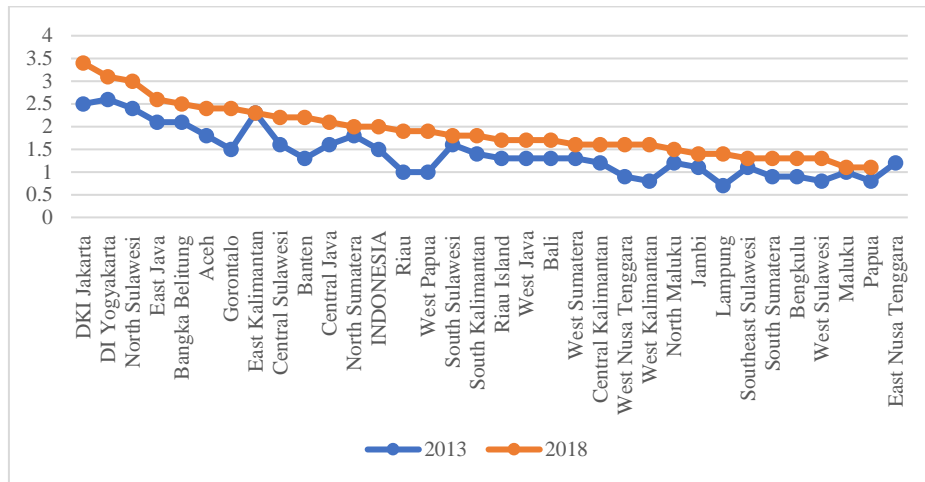


Fig. 3. Prevalence of DM by Province (Per %)

### 3.4 Proportion of Physical Inactivity by Province (Population > 10 years old)

Based on Basic Health Research data, the proportion of physical inactivity in Indonesia showed an increase from 26.1% in 2013 to 33.5% in 2018. The highest proportion of physical inactivity was in DKI Jakarta province with 47.8%, followed by Maluku province 42.5% and Jambi province 42.4% in 2018. The lowest proportion of physical inactivity was East Nusa Tenggara province with 25.2% in 2018 [23].

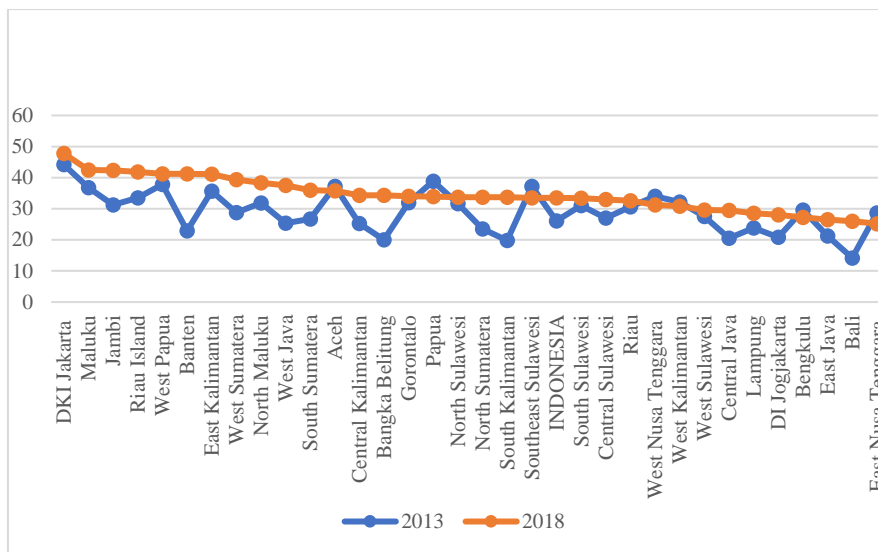


Fig. 4. Proportion of Physical Inactivity by Province (Population>10 years old)

#### 4 Conclusion

The prevalence of NCDs (cancer, diabetes, and stroke) in Indonesia in 2018 has increased from 2013. DKI Jakarta is the province with the highest prevalence of NCDs, i.e. cancer (2.33%), stroke (12.2%), DM (3.4%), as well as the highest of physical inactivity (47.8%) in 2018 in Indonesia. East Nusa Tenggara is the province with the lowest prevalence of NCDs, i.e. cancer (1.49%), stroke (6.1%), and DM (0.9%), as well as with the lowest proportion of physical inactivity (25.2%) in 2018 in Indonesia. Perhaps there is association between physical inactivity and the incidence of NCDs.

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