

# ESTIMATING BURDEN OF DISEASE ATTRIBUTABLE TO PHYSICAL INACTIVITY IN MALAYSIA, 2015



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## INTRODUCTION

Physical inactivity increases the risk of many adverse health conditions, including the world's major non-communicable diseases (NCDs) of coronary heart disease (CHD), type 2 diabetes, and breast and colon cancers, and shortens life expectancy.<sup>1</sup>

Globally, **23%** of adults do not meet

the WHO global recommendations on physical activity for health.<sup>2</sup>

## OBJECTIVE

To estimate the burden of disease (BOD) attributable to physical inactivity in adults aged 30 years and older in Malaysia.

## METHODOLOGY

Attributable burden of physical inactivity was calculated in 3 steps:

### 1 Calculation of Burden of Disease (BOD)

The calculation of BOD in terms of Disability Adjusted Life Years (DALYs) was done using the methodology used in the Global Burden of Disease Study.<sup>3</sup> Mortality and population data used in the calculation were provided by the Department of Statistics, Malaysia.



Figure 1: Component of Disability Adjusted Life Years (DALYs)

### 2 Calculation of Potential Impact Fraction

The potential impact fraction is a measure of effect that calculates the proportional change in disease risk after a change in the exposure of a related risk factor. Potential impact fractions are increasingly used to calculate attributable fractions when the lowest exposure is non-zero. PIF was determined by the prevalence distribution of exposure (P) to the risk factor in the population, and the relative risk (RR) of disease occurrence for given exposure. Data on physical inactivity was obtained from National Health and Morbidity Survey 2015.

$$PIF = \frac{\int_{x=0}^h RR(x)P(x) - \int_{x=0}^l RR(x)P'(x)}{\int_{x=0}^h RR(x)P(x)}$$

- RR(x) is relative risk at each level of exposure;
- P(x) is prevalence distribution in Malaysia;
- P'(x) is the prevalence distribution of the theoretical minimum;
- l and h are the lowest and highest values of the prevalence distributions

### 3 Calculation of Attributable Burden (using DALYs & PIF)

The PIF was then applied to Malaysian BOD estimates (ie: DALYs) for 2015 for the relevant health outcomes to calculate attributable burden using the formula as in the World Health Organization Comparative Risk Assessment methodology.<sup>4</sup>

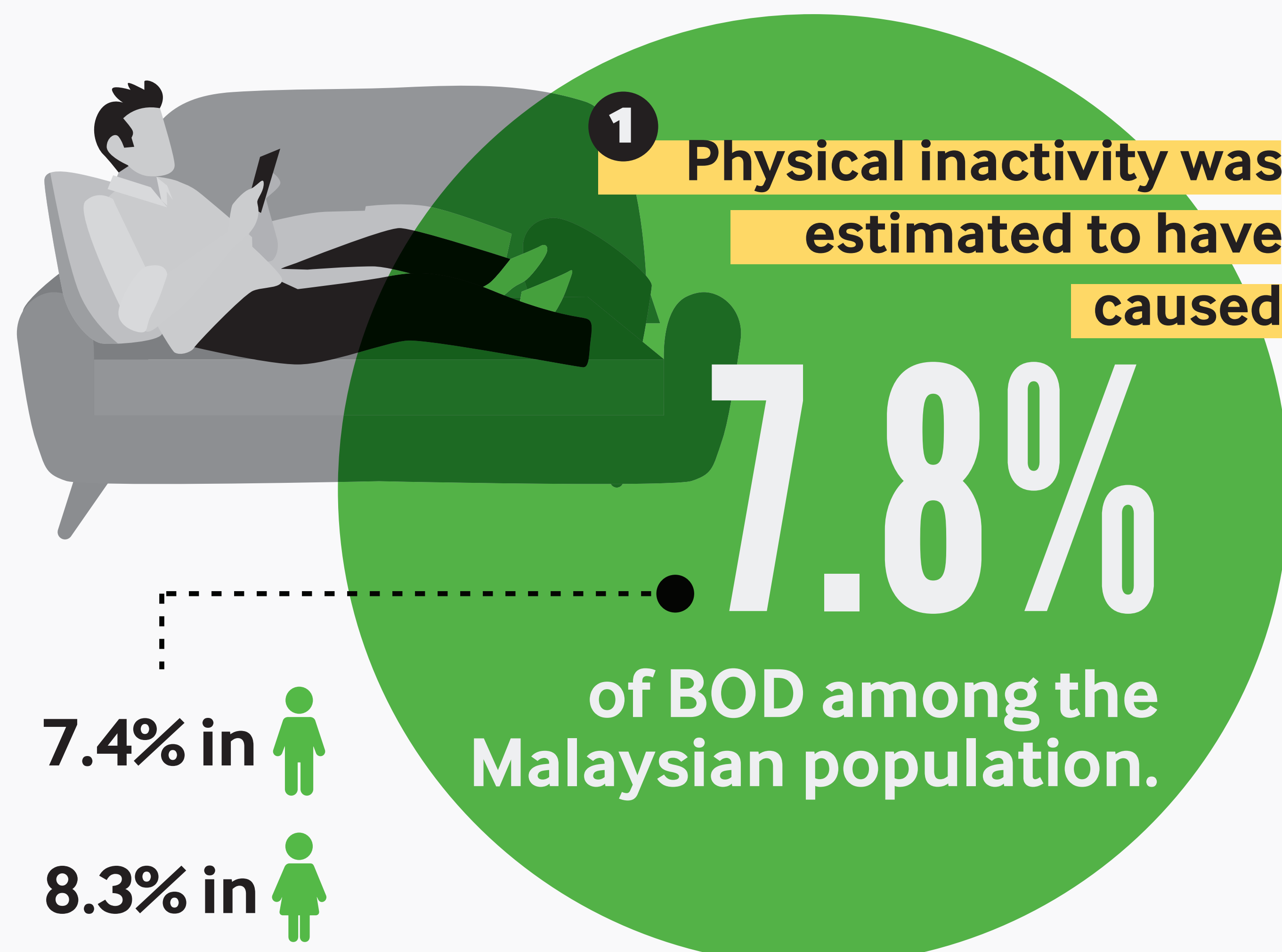
Attributable burden =

$$\sum PIF \times DALYs$$

## DISCUSSION

- The attributable burden of physical inactivity among Malaysian populations was **higher** compared to that found in the global attributable risk factors study which was around **3.0%**.<sup>5</sup>
- Similar to global trends, **Malaysian females** are more inactive than males, and **older adults** are more inactive than younger adults.<sup>6</sup>
- The finding of **Ischaemic Heart Disease** being the largest contributor compared to other diseases is in concordance with the findings from the Australian Burden of Disease study.<sup>7</sup>

## RESULTS



Health Outcome	Overall	Male	Female
Ischaemic heart disease	112,726	75,051	37,675
Stroke	61,809	31,392	30,417
Diabetes Mellitus	66,361	30,789	35,572
Colon & Rectum Cancers	10,513	5,614	4,899
Breast Cancer	7,416	0	7,416
<b>TOTAL</b>	<b>258,825</b>	<b>142,846</b>	<b>115,978</b>
<b>% of total BOD (DALYs)</b>	<b>7.8</b>	<b>7.4</b>	<b>8.3</b>

Table 1: Burden (DALYs) attributable to physical inactivity by gender

**2 Ischaemic Heart Disease** was the largest contributor for DALYs attributable to physical inactivity in both males and females at **52.5%** and **32.5%** respectively.

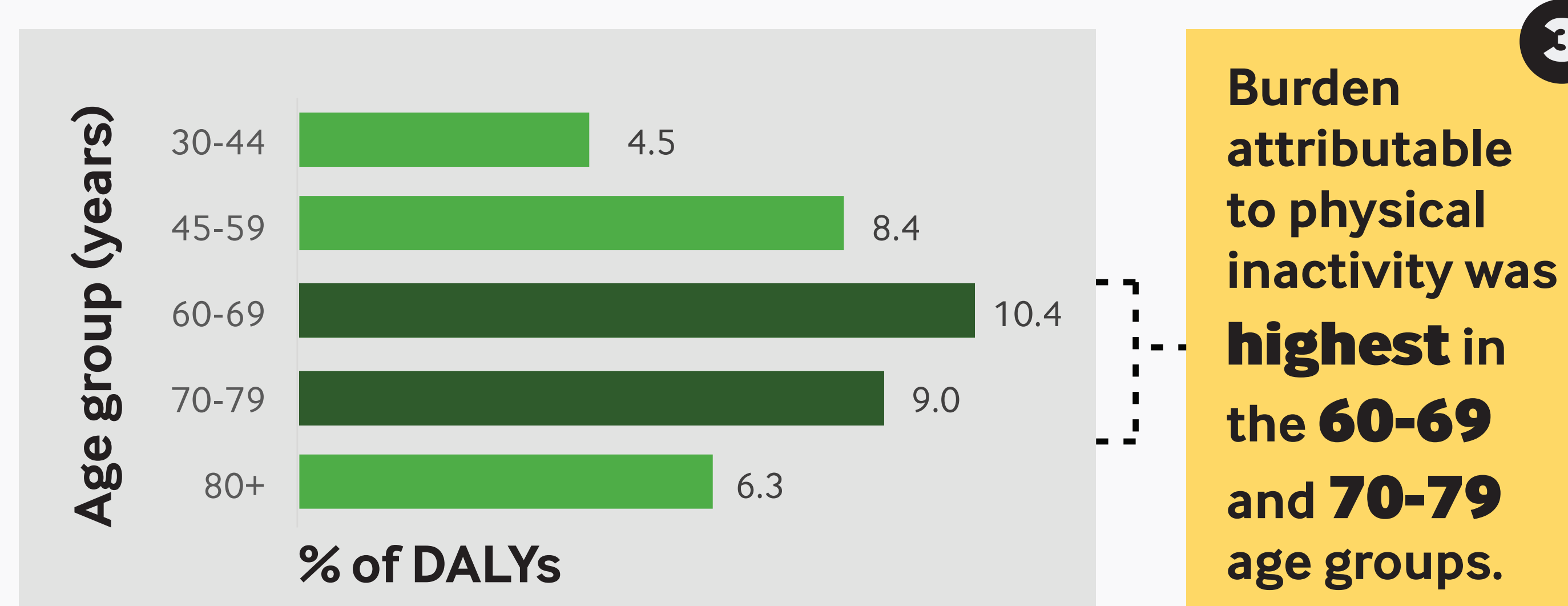


Figure 2: Burden attributable to physical inactivity by age group

## CONCLUSION

- This study shows the importance of physical inactivity as a major risk to health.
- Priority should be placed on the implementation of physical activity intervention by providing exposure to positive physical activity experiences and creating activity-friendly environments through smart and supportive policies.<sup>8</sup>

## REFERENCES

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