

# DOES PHYSICAL FITNESS LEVEL ASSOCIATE WITH BODY WEIGHT STATUS AMONG SCHOOL ADOLESCENTS IN TERENGGANU, MALAYSIA?

Nurzaima Zulaily<sup>1</sup>, Aryati Ahmad<sup>2</sup>, Mohd Razif Shahril<sup>3</sup>

<sup>1</sup> Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia

<sup>2</sup> School of Nutrition and Dietetics, Faculty of Health Sciences, Gong Badak Campus, Universiti Sultan Zainal Abidin

<sup>3</sup> Centre for Healthy Ageing and Wellness (H-CARE), Faculty of Health Sciences, Universiti Kebangsaan Malaysia

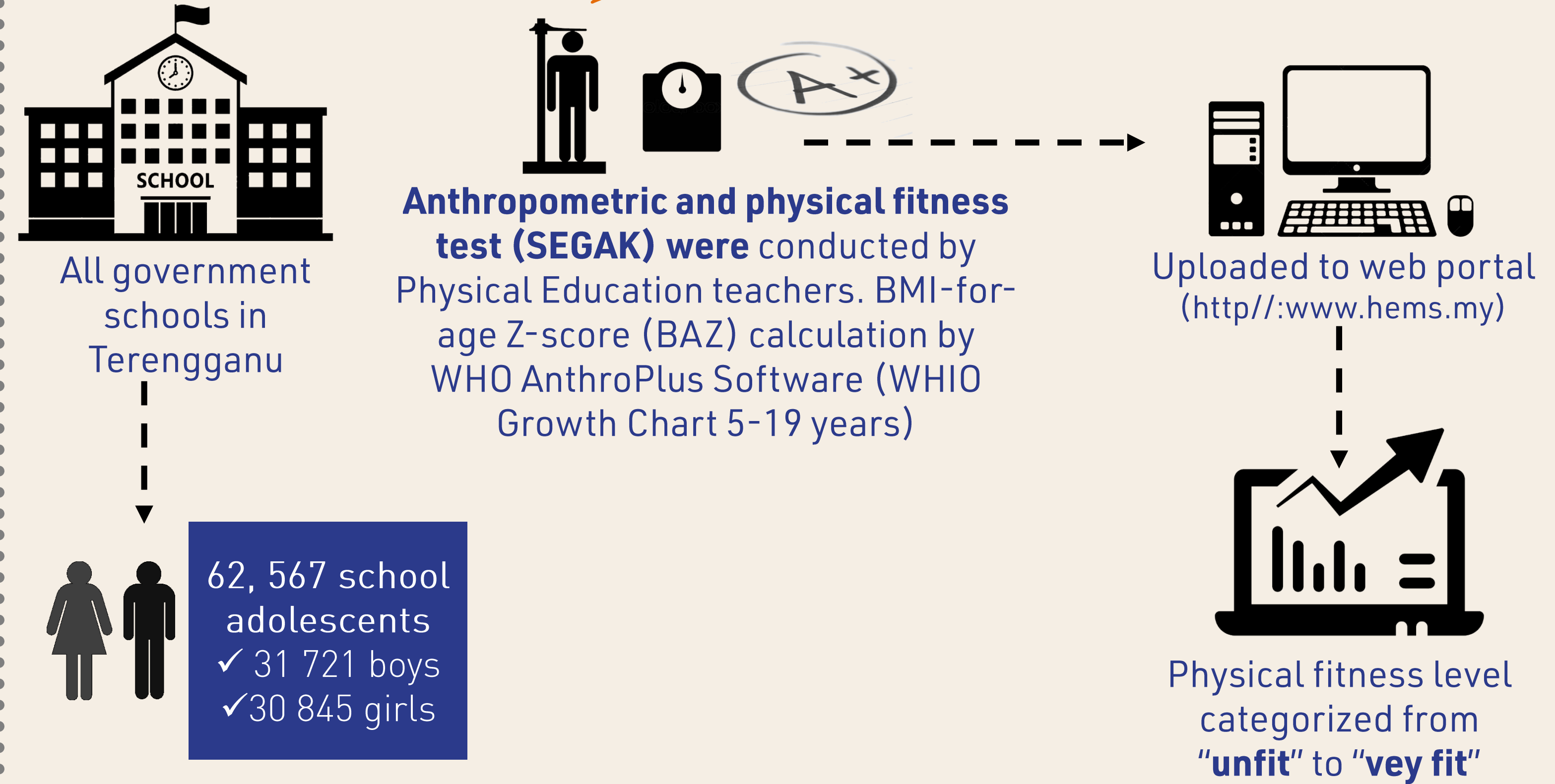
## INTRODUCTION

- Physical fitness (PF) acts as a marker for health outcomes during childhood and adolescence (1).
- Decreased PF among children and adolescents was found to be associated with the increased abdominal adiposity, increased prevalence of cardiovascular risk factors, whilst also negatively psychosocial well-being and academic performance (2).
- However, physical fitness status among school adolescents especially in Terengganu is not well established.

## OBJECTIVE

- This study was conducted to examine the association between physical fitness level and body weight status among adolescents in Terengganu, Malaysia.

## METHOD



## RESULT & DISCUSSION

- Mean BMI of boys and girls aged 10 to 12, 13 to 15 and 16 to 17 years old were ranging from 18.0±4.3 kg/m<sup>2</sup> to 21.5±4.5 kg/m<sup>2</sup>

Table 1: Subject characteristics

	10 - 12	13 - 15	16 - 17	All
Age (years)				12.7 ± 2.3
Height (cm)	138.1 ± 8.9	154.0 ± 8.8	159.6 ± 8.2	145.9 ± 12.7
Weight (kg)	34.9 ± 10.8	48.7 ± 13.1	54.7 ± 13.0	41.9 ± 14.4
BMI (kg/m <sup>2</sup> )	18.0 ± 4.2	20.4 ± 4.6	21.4 ± 4.5	19.2 ± 4.6
Fitness test				
Step-up	3.5 ± 1.2	3.2 ± 1.2	3.0 ± 1.2	3.3 ± 2.0
Push-up	3.3 ± 1.5	3.2 ± 1.4	3.4 ± 1.4	3.3 ± 1.5
Partial curl-up	3.8 ± 1.4	4.2 ± 1.2	4.2 ± 1.1	4.0 ± 1.3
Sit and reach	2.5 ± 1.0	2.7 ± 1.0	2.8 ± 1.1	2.6 ± 1.0

- There were significant differences in **mean physical fitness score** between boys and girls, school locations and districts in age groups of **10 to 12** and **13 to 15 years old** for all tests.
- Fig. 1: Nearly **50%** of boys and girls from all age groups were categorized as **fit** and only **4.7%** to **6.6%** were categorized as **very fit** with **0.9%** to **2.3%** were categorized as **unfit**.
- Fig. 2: Significant correlations were found between BMI categories and physical fitness level for boys (r=0.0138) and girls (r=0.138) (p<0.001).

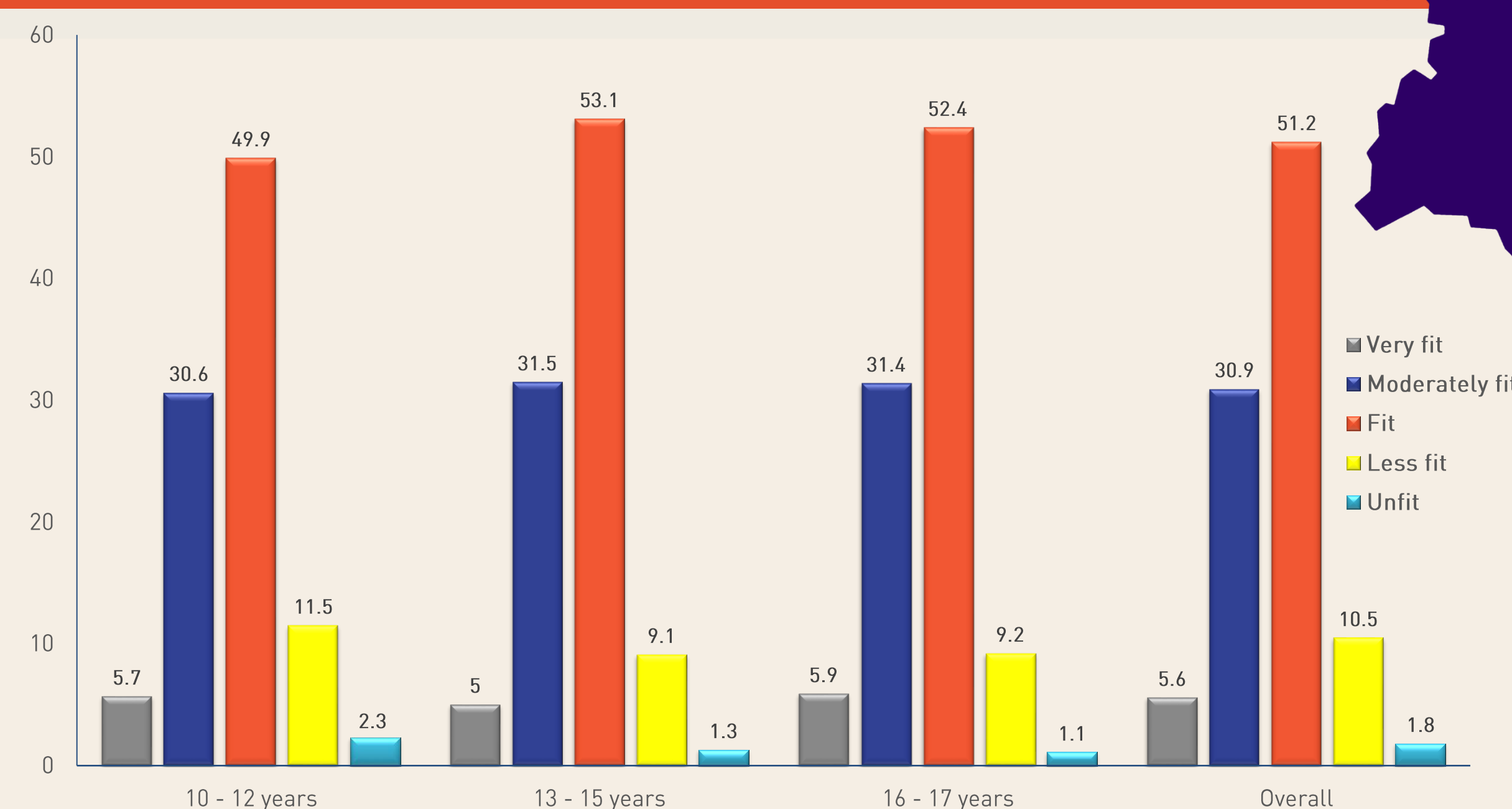


Figure 1: Percentage of physical fitness categories (overall)

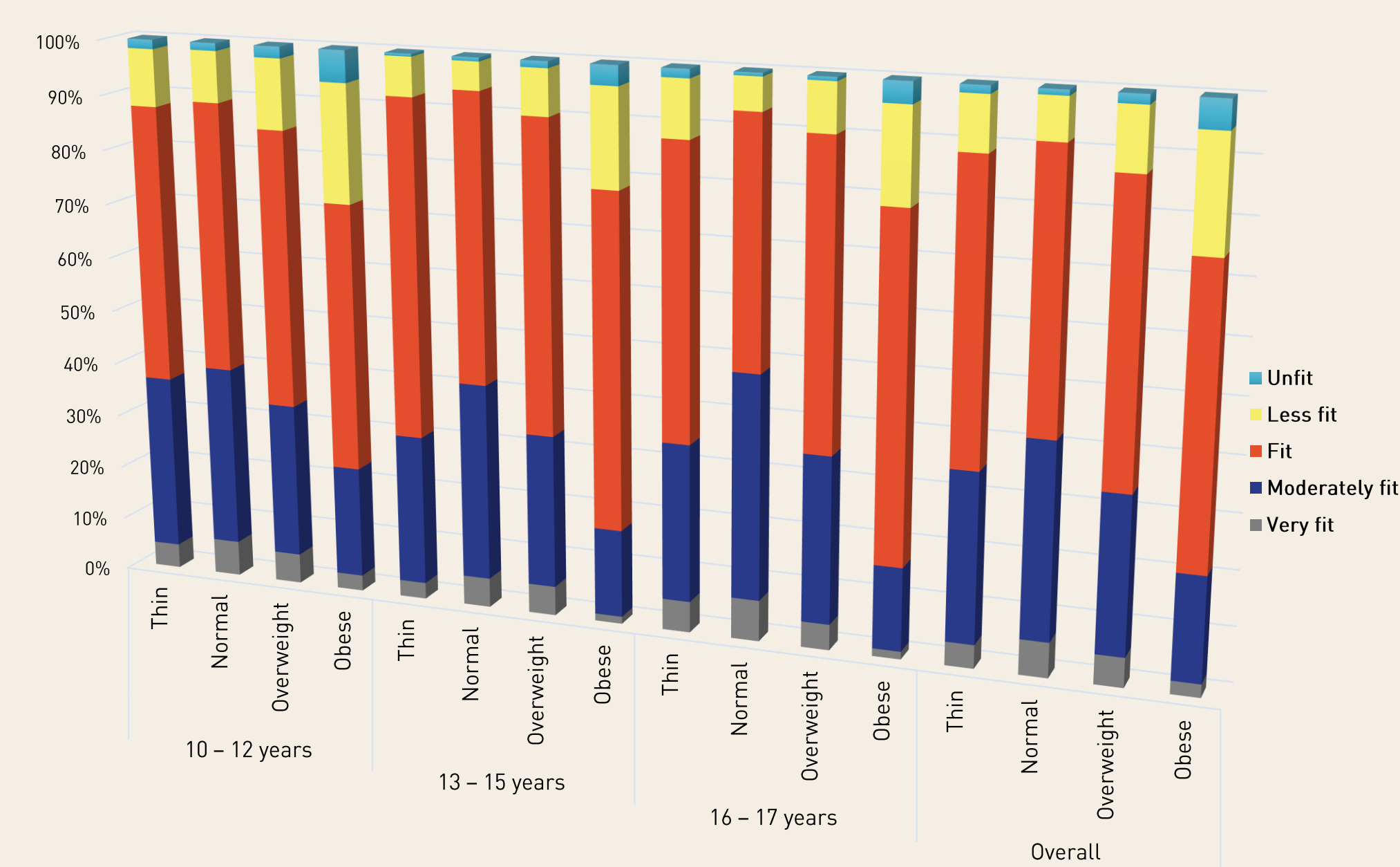


Figure 2: BMI categories vs physical fitness categories

- There was also a significant association between physical fitness levels and gender, school location and also districts in all age groups.
- The association between BMI categories and PF level especially among obese can be explained by the high fat mass due to lack of exercise that leads to lower fitness level (3).
- Fogelholm et al. suggested that negative association between being overweight and PF may prevent physically active overweight individuals from achieving better PF level (4).

## CONCLUSION

- BMI, genders, school locations and districts of living were associated with physical fitness level among school adolescents.**
- Understanding the factors associated with low physical fitness level among school adolescents can **alert targeted interventions and public health initiatives** aimed at promoting healthier lifestyles and reducing obesity in this population.

## REFERENCES

- Fraser BJ, Blizzard L, Schmidt MD, Juonala M, Dwyer T, Venn AJ, et al. Journal of Science and Medicine in Sport Childhood cardiorespiratory fitness, muscular fitness and adult measures of glucose homeostasis. J Sci Med Sport. 2018;21(9):935-40.
- Hermoso AG, Ramirez R, Mikel C. Is Muscular Fitness Associated with Future Health Benefits in Children and Adolescents? A Systematic Review and Meta - Analysis of Longitudinal Studies. Sport Med. 2019;49(1079-1094).
- Dewi RC, Rimawati N. Body mass index, physical activity, and physical fitness of adolescence. J Public Health Res. 2021;10:2230.
- Fogelholm M, Stigman S, Huisman T, Metsa J. Physical fitness in adolescents with normal weight and overweight. Scand J Med Sci Sport. 2008;18(2):162-70.

## ACKNOWLEDGEMENT



This study is funded by Ministry Of Higher Education (FRGS/2/2013/SKK/UNISZA/01/1).



KEMENTERIAN PENDIDIKAN TINGGI

