

Hypertension and its association with Anthropometric indices among students in a public university

Cheah WL, Majorie Ensayan J, Helmy H, Chang CT

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Authors:

Cheah Whye Lian

(Corresponding author)
PhD

Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak Malaysia.
Email: wlcheah@unimas.my

Majorie Ensayan Junting

MPH
Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia.
Email: majoriensayan@yahoo.com

Helmy Hazmi

MComMed
Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak Malaysia.
Email: hhelmy@unimas.my

Abstract

Introduction: The present study aimed to determine the prevalence of hypertension and its association with nutritional status (body mass index, body fat percentage, and visceral fat) among students in a public university in Sarawak, Malaysia.

Methods: This was a cross-sectional study among undergraduate students aged 18 years old and above. Anthropometric measurements, such as weight, height, body composition, and blood pressure measurements, were collected. Hypertension was defined as equal or more than 140/90 mmHg. Statistical analyses were done using IBM SPSS version 20.

Results: A total of 354 respondents participated in the study. Mean age for the respondents was 21 years (SD 1.18 years). About 40% of the respondents were overweight or obese. Prevalence of hypertension was 8.2%. Mean systolic blood pressure was 119.1mmHg (SD14.36mmHg), and the mean diastolic blood pressure was 72.6mmHg (SD 9.73mmHg). There is a significant association between male gender (odds ratio =3.519, 95% CI is 1.886-6.566), body fat percentage (odds ratio =1.944, 95% CI is 1.050-3.601), visceral fat (odds ratio = 2.830, 95% CI is 1.346-5.951), and family history of hypertension (odds ratio= 2.366, 95% CI is 1.334-4.194) and hypertension.

Conclusion: The prevalence of hypertension was less than 10% and is associated with male gender, body composition, and family history of hypertension.

Introduction

Hypertension is one of the leading causes of disability and death. Globally, in 2014, the prevalence of hypertension in adults was approximately 22%.¹ Men are known to have a slightly higher prevalence of hypertension (21%) as compared to women (16%) in all World Health Organization (WHO) regions.¹ According to the WHO, the age-standardized prevalence of hypertension in adults 18 years and above in Malaysia is 19.6%.¹ Hypertension is well known for being one of the most common risk factors for heart attack and stroke.² According to the Malaysian Ministry of Health,³ in 2013, when considering ischemic heart disease at Ministry of Health Hospitals, the death rate specific to angina pectoris was 1.99 per 100,000 population, and acute myocardial infarction contributed 4.20 deaths per 100,000 population. Due to ill health, the burden of the disease not only impairs a person's capability and productivity, but indirectly leads to smaller economic growth of

the country. Therefore, hypertension affecting a large number of patients in Malaysia creates an economic burden on the health care budget and the nation's economy.⁴

With the presence of risk factors, such as high salt consumption, habitual alcohol intake, sedentary lifestyle, ageing, and stressful life events, which may occur concurrently and act synergistically, individuals may have a higher chance of developing hypertension. This health issue not only affects older adults, but also those who are younger since most people who develop hypertension at an early stage are asymptomatic. A local study by Cheah et al.⁵ demonstrated that 7.3% of pre-university students were at risk of hypertension; these were predominantly males. Similar studies carried out in other countries reported a prevalence of hypertension of 7.5-9.3% among university students.^{6,7,8} The study by Cheah et al.⁵ further suggested that there was a positive relationship between being overweight or obese and the development of hypertension, in which