

**UNIVERSITI TEKNOLOGI MARA**

**HEALTH LITERACY, MEDICATION  
ADHERENCE AND FACTORS  
ASSOCIATED WITH BLOOD  
PRESSURE CONTROL IN  
HYPERTENSIVE PATIENTS IN A  
PRIMARY CARE CLINIC**

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## ABSTRACT

**Background:** Optimal blood pressure control is crucial to prevent cardiovascular diseases. Many factors are associated with blood pressure (BP) control. These include various sociodemographic and clinical factors, health literacy (HL), and medication adherence (MA). Poor HL and MA adversely affect BP control. However, local data is limited. This study aims to identify the predictors for blood pressure control by evaluating the association of HL, MA, and various sociodemographic and clinical factors on blood pressure control in patients with hypertension attending a primary care clinic.

**Methodology:** A cross-sectional study was conducted between September to December 2019 in KK Seksyen 19, Shah Alam. Convenient sampling was used to recruit 349 patients with hypertension who were  $\geq 35$  years old, diagnosed with hypertension for  $\geq$  six months, and comprehend English or Malay language. Sociodemographic and clinical information was entered into a questionnaire. Health literacy was measured using the self-administered Health Literacy Survey Short-form 12-items (HLS-SF12). Medication adherence was measured using the self-administered 7-items New Medication Adherence Scale. Both tools were in English and Malay language. The HLS-SF12 and the New Medication Adherence Scale were validated in Malaysia with Cronbach alphas of 0.79 - 0.90 and 0.782, respectively.

**Results:** Participants' mean age was  $56.8 \pm 9.6$  years. The prevalence of BP control was  $n= 198$  (56.7%) with a mean systolic and diastolic blood pressure of  $135.2 \pm 13.9$  mmHg and  $81.5 \pm 9.4$  mmHg, respectively. The mean HL score was  $37.7 \pm 4.79$ , ranging from 20 to 48. Most participants,  $n= 278$  (79.6%) reported sufficient or excellent level of health literacy, and only  $n= 4$  (1.1%) reported problematic health literacy. Univariate simple logistic regression analysis identified twelve factors which were significantly associated with blood pressure control ( $p < 0.25$ ). HL ( $p = 0.94$ ) was not associated with BP control. Multiple logistic regression identified four factors that were significant predictors for BP control: age, medication adherence, the number of prescribed medications and smoking. The odds of achieving BP target increased with increasing age [OR 1.05 (95% CI 1.03, 1.08),  $p < 0.001$ ] and in patients with good medication adherence [OR 2.22 (95% CI 1.37-3.60),  $p = 0.001$ ]. In contrast, the odds of BP control reduced with higher number of prescribed medications [OR= 0.75 (95% CI 0.65, 0.86),  $p < 0.001$ ] and smoking [OR= 0.19 (95% CI 0.04, 0.96),  $p = 0.04$ ].

**Conclusions:** Despite advances in our understanding and treatment options for hypertension, controlling blood pressure remains a challenge. It is important to identify factors influencing blood pressure control for better hypertension management and to reduce complications. In our study, health literacy was not associated with blood pressure control. Future research is recommended to further explore health literacy, and its relationship with blood pressure control to ascertain its potential importance in hypertension and other chronic diseases.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Study background.

The key risk factor for cardiovascular diseases worldwide and in Malaysia is hypertension. It caused coronary diseases, strokes, kidney failures, untimely deaths and disabilities. Globally, it was responsible for approximately 45% and 51% of deaths from heart diseases and cerebrovascular accident, respectively (World Health Organization, 2013a). The situation with hypertension in Malaysia is not any better. In 2015, nearly half (44.7%) of Malaysian adults over the age of 30 years have elevated blood pressure. Unfortunately, most cases of hypertension (62.5%) remain undetected; while in patients treated for hypertension, only 37.4% achieved blood pressure control (Institute for Public Health, 2015; Ministry of Health, 2018). There are many factors known to be associated with inadequate control of blood pressure. Factors such as age, gender, ethnicity, socioeconomic status, smoking, body mass index, duration of hypertension, dietary salt intake, non-adherence to therapy, lack of awareness and access to healthcare and health literacy, may affect blood pressure (Abdul-Razak S et al., 2016; Ministry of Health, 2018; Ramli A, Ahmad NS, & Paraidathathu T, 2012; World Health Organization, 2013a, 2013b).

### 1.2 Health literacy. What is Health literacy?

Health literacy is an essential component in managing chronic diseases. The definition of health literacy is; the cognitive and social skills which determine the motivation and ability of individuals to gain access, to understand and use information in ways which promote and maintain good health (World Health Organization, 2013b). In Malaysia, the National Health and Morbidity Survey 2015 revealed that only 6.6% of adults aged 18 years and above have an adequate health literacy level, with urban population having significantly adequate level of health literacy in comparison to the rural population (Institute for Public Health, 2015).

Limited health literacy adversely affects health outcomes. It is associated with less involvement in health promotion and screening activities, risky health choices (e.g. smoking, excessive alcohol intake, poor food choices), diminished ability to self-manage chronic diseases (e.g. hypertension, asthma, diabetes, HIV/AIDS), poor adherence to treatment, frequent hospitalisations and deaths (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; World Health Organization, 2013b).

However, findings on the association of health literacy with blood pressure control had shown mixed findings. While low health literacy is associated with poor blood pressure outcome, studies also suggested that adequate health literacy may be associated with a slight elevation in blood pressure. Additionally, an integrative review did not find any significant independent association between health literacy and blood pressure control. These may be due to different study population and assessment tools used (Du et al., 2018; McNaughton, Jacobson, & Kripalani, 2014; Pandit AU et al., 2009; Willens et al., 2013). Additionally, individuals with a low level of health literacy are at higher risk to poor medication adherence