

UNIVERSITI TEKNOLOGI MARA

**ADHERENCE TO CLINICAL
PRACTICE GUIDELINES IN
MANAGING HYPERTENSIVE
PATIENTS WITH
CARDIOVASCULAR DISEASES IN
GOMBAK, SELANGOR, MALAYSIA:
A CROSS-SECTIONAL STUDY ON
PREVALENCE AND ASSOCIATED
FACTORS**

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ABSTRACT

Introduction: Hypertension is a major modifiable risk factor for cardiovascular diseases (CVDs), contributing significantly to global morbidity and mortality. In primary care, adherence to clinical practice guidelines (CPGs) is crucial for effective hypertension management. This study determined the prevalence of guideline adherence and associated factors in the high-risk subpopulation with CVD using a validated comprehensive evaluation. **Objective:** This study aims to determine the prevalence of adherence to the 5th edition hypertension guidelines, identify factors influencing adherence, and assess the impact of guideline adherence on blood pressure outcomes among hypertensive patients with cardiovascular diseases in four health care clinics under Gombak District, Selangor. **Method:** Cross-sectional study reviewed medical records (2020-2023) from 455 hypertensive patients with CVDs across four health clinics in Gombak, Selangor, Malaysia. This study utilized a multistage sampling method (weighted stratified and systematic) to ensure representative data collection. Adherence to the Hypertension Guideline was assessed using a modified version of the Milchak JL's validated adherence framework and aligned with 5th edition Malaysian guideline recommendations. Multivariate logistic regression identified factors associated with adherence, while subgroup analysis examined its impact on blood pressure (BP) control. **Results:** Most hypertensive patients with CVDs were elderly males (60–79 years, 64.4%), predominantly Chinese (35.2%), with high metabolic risk due to dyslipidaemia (57.7%), smoking (31.6%), and obesity (BMI ≥ 27.5 kg/m²: 52.6%). Polypharmacy was common (47.0%), and medication adherence was high (95.7%). The prevalence of 5th Hypertension Guideline adherence was 79.1%. Adherence was significantly associated with patients prescribed multiple antihypertensive medications (OR: 6.04, 95% CI: 1.90–19.27, $p=0.002$), those who underwent de-escalation of therapy (OR: 15.16, 95% CI: 1.52–151.49, $p=0.021$), and those with no change in therapy (OR: 4.04, 95% CI: 1.15–14.23, $p=0.030$). However, guideline adherence was not significantly associated with BP control. Among adherent patients ($n=360$), 55.0% achieved BP control. In Category A (BP target $<130/80$ mmHg, $N=232$), adherence did not significantly influence BP control (OR = 0.95, 95% CI: 0.46–1.97, $p=0.085$). In Category B (BP target $<140/90$ mmHg, $N=223$), BP control was slightly higher among adherent patients (66.7%), but this association was not significant (OR = 0.88, 95% CI: 0.48–1.62, $p=0.701$). **Conclusion:** This study found high guideline adherence but no significant association with BP control in hypertensive patients with CVDs. Adherence was primarily influenced by the number of antihypertensive medications prescribed and medication modifications. However, effective hypertension management requires more than adherence alone, as challenges such as the lack of a standardized registry, poor care continuity, and disease complexity persist. Integrating guidelines with individualized treatment and enhancing continuity of care is crucial for optimizing outcomes in primary care.

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CHAPTER ONE

INTRODUCTION

Cardiovascular diseases (CVDs) are a major global health challenge, posing a significant burden on morbidity and mortality rates across the world. CVDs encompass a wide range of disorders affecting the heart and blood vessels, such as coronary artery disease (CAD), cerebrovascular disease or stroke, peripheral artery disease (PAD), and other related conditions. The study conducted by Gregory found that CAD accounted for 49.2% of deaths from CVDs, making it the leading cause. This was followed by ischemic stroke at 17.7%, intracerebral haemorrhage at 15.5% and eight other CVDs making up the remaining percentage (1).

Data from OurWorldInData shows that Malaysia's CVD mortality rate reached 73,871 deaths per 100,000 population in 2021—nearly double the rate in 2000, which recorded 35,432 deaths per 100,000 population (2). Meanwhile, the 2024 Statistics on Causes of Death, Malaysia reported that CAD was the second leading cause of death, accounting for 15.1% of total fatalities, followed by stroke at 7.2%. Additionally, out of Malaysia's 16 states, 10 identified CAD as the primary cause of death (3).

A recent study identified hypertension as the most significant modifiable risk factor in 2021, contributing to over 10.8 million cardiovascular deaths and 11.3 million total deaths worldwide. It is strongly linked to fatalities from CAD and stroke, as rising blood pressure (BP) levels shift the overall distribution upward (4, 5). In Malaysia, hypertension plays a major role in cardiovascular health, accounting for 16.1% of total deaths from CAD and contributing to 59.4% of CVD-related disability-adjusted life years (DALYs). Additionally, it imposes a substantial economic burden, costing the country an estimated RM 59.85 billion annually (3, 6). Findings from the National Health and Morbidity Survey (NHMS) 2023 indicate that among the 17.3% of individuals diagnosed with hypertension, 91% are on medication, yet only 48% successfully achieve BP control (7). These concerning statistics highlight the urgent need for proactive interventions to prevent CVD events and complications among hypertensive patients.