

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF D-PATH
WEBSITE ON DIET AND PHYSICAL
ACTIVITY TO MANAGE
HYPERTENSION FOR MALAY
POPULATION**

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ABSTRACT

Controlling blood pressure in hypertensive patients requires continuous education on diet and physical activity management. Many available websites on hypertension were average in quality and missing of integration of behavioural change theories, learning and multimedia theories. This study aims to develop D-PATH website on diet and physical activity to manage hypertension for Malay population. The development process involves three phases: 1) needs assessment, 2) design, development, and evaluation and 3) feasibility study. To achieve the objectives, a mixed-method approach was employed. Phase I explored the web components and content of a web-based nutrition education intervention module for hypertension based on patient preferences, a review of the literature, and an analysis of clinical guidelines for hypertension. As suggested by 14 hypertensive patients, the website should include an overview of hypertension, diet, and physical activity, and use a variety of multimedia components in line with the literature review and clinical guidelines. Phase II was aimed at designing, developing and evaluating the website in which a module on diet and physical activity was developed to be used for the website. The theories of behavioural change, multimedia, and instructional design were also used as the basis for the website. The website was quantitatively tested for validity and acceptability by 13 experts from the fields of dietetics, medicine, and clinical psychology. The content of the website is valid, and the experts agreed that the website can be used for education intervention among hypertensive patients. In Phase III, the website was evaluated to determine its feasibility for the intervention and to identify any necessary revisions. The feasibility study lasted 4 weeks and included 38 patients at baseline, but only 18 completed the study. The website was rated as highly understandable and actionable (score > 90%). Participants were satisfied with the website and there was a positive improvement in knowledge, attitude, and practice. Physical activity levels also improved with the participants being moderately to vigorously active at the end of the study. However, no changes were observed in dietary intake, blood pressure, and anthropometric measurements. In conclusion, D-PATH website is capable in improving the knowledge, attitude, and practice but no changes were observed in patients' behaviour before and after intervention. The website could also be adopted for an intervention study with a larger number of patients and serve as a reference for healthcare providers to develop an educational website. The development of the D- PATH website adds value to the healthcare system as it can be used as an additional tool for nutrition education. The novelty of this study is the process of designing and developing the website using the behavioural change theory, learning and multimedia theories, and instructional design, along with the concept of edutainment being integrated into the content of the website.

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TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xii
LIST OF FIGURES	xv
LIST OF ABBREVIATIONS	xvi
CHAPTER ONE INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	4
1.3 Preliminary Studies	5
1.4 Gap of Knowledge	7
1.5 Objectives	8
1.5.1 General Objective	8
1.5.2 Specific Objectives	8
1.6 Research Questions	9
1.7 Justification of Study	9
1.8 Significance of Study	10
1.8.1 Theoretical Significance	10
1.8.2 Practical Significance	10
1.9 Conceptual Framework	11
1.10 Scope and Delimitation	12
CHAPTER TWO LITERATURE REVIEW	14
2.1 Introduction	14
2.2 Definition and Prevalence of Hypertension Worldwide and in Malaysia	14
2.3 Risk Factors Contributing to Hypertension	16

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

The Nutrition Research Priorities in Malaysia for the 12th Malaysia Plan (2021-2025) and the World Health Organisation's (WHO) Sustainable Development Goal (SDG) highlight that hypertension is one of the most critical areas for research. It is because hypertension contributes significantly to the increase in disability-adjusted life years (DALYs) (Ministry of Health Malaysia, 2020; World Health Organization, 2021c). Hypertension (HTN) has become a worldwide public health concern and the primary cause of morbidity and mortality (Brouwers et al., 2021; World Health Organization, 2021b). It poses a considerable risk for dementia, chronic kidney ailments, ischemic heart ailments, cardiovascular ailments, and stroke (B. Zhou et al., 2021). B. Zhou et al. (2021) added that the World Health Organization (WHO) projects that 1.28 billion people aged 30 to 79 suffer from hypertension, with the majority (66%) living in low- and middle-income nations. Based on the Malaysia National Health and Morbidity Surveys (NHMS) report in 2019, the prevalence of hypertension was reported at 32.6% in 2011, 30.3% in 2015 and 30% in 2019 (Institute for Public Health (IPH), 2019). Although the percentage was plateau, the number of patients with hypertension increased based on the total number of populations in Malaysia. According to the NHMS report 2019, Malay people had the highest prevalence of known and unknown hypertension (34.8%), followed by Indians (30.3%) and Chinese (27.6%). The Malay population has the most significant rate of hypertension, estimated at 3 million people. On the other hand, the number of patients with hypertension who received medical treatment increased from 78.9% in 2006 to 83.2% in 2015 (Institute for Public Health (IPH), 2019). However, despite the higher proportions of patients receiving treatment, the control of hypertension remained below 40% (Ab Majid et al., 2018). In particular, 33.2% of Malays had poor control of hypertension as compared to Chinese (46.8%) and Indians (40.8%) (Abd Kadir et al., 2015). Therefore, the Malay population should be given more attention due to the high number of HTN cases and higher statistics of uncontrolled blood pressure. Moreover, Malay is the largest ethnicity