

KNOWLEDGE AND ATTITUDE OF HYPERTENSION  
AMONG ADULTS WHO ATTEND THE OUTPATIENT  
CLINICS AT HOSPITAL UNIVERSITI SAINS MALAYSIA  
(USM)

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CLINICS AT HOSPITAL UNIVERSITI SAINS MALAYSIA  
(USM)

by

NURULNAJWA BINTI ZAHIDIN

Dissertation submitted in partial fulfilment of  
the requirements for the degree of  
Bachelor in Nursing with Honours

AUGUST 2024

## CERTIFICATE

This is to certify that the dissertation entitled “Knowledge and Attitude of Hypertension Among Adults Who Attending Outpatient Clinics at Hospital Universiti Sains Malaysia (USM)” is the research work done by Ms “Nurulnajwa binti Zahidin” during the period from October 2023 until August 2024 under my supervision. I have read this dissertation, and, in my opinion, it conforms to acceptable standards of supervision of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfilment for the degree of Bachelor in Nursing with Honours.

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## DECLARATION

I hereby declare that this dissertation is the result of my investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purposes.



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## LIST OF TABLES

Table 1. 1 The Operational and Conceptual Definition .....	9
Table 3. 1 List of Outpatient Clinics in Hospital USM.....	24
Table 3. 2 Sample size calculation using a two-proportion formula.....	29
Table 3. 3 Independent and Dependent Variables of the Study .....	32
Table 3. 4 Bloom’s Cut-off Point for the Level of Knowledge Toward Hypertension .....	33
Table 3. 5 Level of Attitude Based on Bloom’s Cut-off Points .....	33
Table 3. 6 Data Analysis Plan.....	36
Table 4. 1 Frequency, percentage and mean (SD) of socio-demographic data of respondents (n=165).....	40
Table 4. 2 Knowledge of hypertension among adults attending outpatient clinics at Hospital USM, (n=165).....	42
Table 4. 3 Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM, (n=165).....	44
Table 4. 4 The Overall Frequency and Percentage Level of Knowledge of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM, (n=165) .....	46
Table 4. 5 The overall frequency and percentage level of attitude of hypertension among adults attending outpatient clinics at Hospital USM, (n=165) .....	47
Table 4. 6 The Associations Between the Level of Knowledge of Hypertension with the Selected Sociodemographic Characteristics Among Adults Attending Outpatient Clinics at Hospital USM, (n=165).....	48
Table 4. 7 The Associations Between the Level of Attitude of Hypertension with the Selected Sociodemographic Characteristics Among Adults Attending Outpatient Clinics at Hospital USM, (n=165).....	50
Table 4. 8 The Association between the Level of Knowledge and the Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM, (n=165).....	51

## LIST OF FIGURES

Figure 2. 1 The Theoretical Framework.....	20
Figure 2. 2 The Adapted Theory of Health Belief Model (HBM) .....	22
Figure 3. 1 Flow of the Data Collection Process.....	35

## **LIST OF ABBREVIATION**

USM	Universiti Sains Malaysia
HBM	Health Belief Model
KRK	Klinik Rawatan Keluarga
KPP	Klinik Pakar Perubatan
SOPD	Surgery Outpatient Department Clinic
ENT	Ears, Nose, Throat
O&G	Obstetrics & Gynecology
SD	Standard Deviation
HREC	Human Research Ethics Committee



**PENGETAHUAN DAN SIKAP HIPERTENSI DALAM KALANGAN ORANG  
DEWASA YANG MENGHADIRI KLINIK PESAKIT LUAR DI HOSPITAL  
UNIVERSITI SAINS MALAYSIA (USM)**

**ABSTRAK**

Hipertensi, sering dikenali sebagai tekanan darah tinggi, disebabkan oleh daya darah yang berlebihan pada dinding saluran darah anda. Nilai 140/90 mmHg atau lebih tinggi menunjukkan hipertensi. Kajian ini bertujuan untuk menilai tahap pengetahuan dan sikap terhadap hipertensi dalam kalangan orang dewasa yang menghadiri klinik pesakit luar di Hospital USM. Kajian keratan rentas telah dijalankan ke atas orang dewasa berumur 18 hingga 60 tahun. Data dikumpul menggunakan soal selidik yang ditadbir sendiri. 165 orang dewasa yang menghadiri klinik pesakit luar di Hospital USM yang memenuhi kriteria inklusi kajian ini. Mereka dipilih melalui kaedah persampelan konvinien. Data yang dikumpul dianalisis secara statistik menggunakan perisian SPSS versi 27. Kajian menggunakan statistik deskriptif dan Pearson Chi-square.

Hasil kajian menunjukkan bahawa 119 (72.1%) peserta mempunyai tahap pengetahuan hipertensi yang baik dan 84 (50.9%) peserta mempunyai sikap yang baik terhadap hipertensi. Namun begitu, tahap sikap baik adalah hampir sama dengan tahap sikap sederhana iaitu 80 (48.5%). Tidak terdapat perkaitan antara pengetahuan dan sikap ( $p = 0.079$ ), keputusan menunjukkan hanya 66 (40.0 %) peserta yang mempunyai pengetahuan dan sikap yang baik. Akhir sekali, tidak terdapat perkaitan antara faktor sosiodemografi [umur ( $p = 0.197$ ), jantina ( $p = 0.232$ ), tahap pendidikan ( $p = 0.057$ ), status pekerjaan ( $p = 0.273$ ), status merokok ( $p = 0.201$ ), sejarah keluarga hipertensi ( $p = 0.996$ ) dan status senaman ( $p = 0.174$ )] dan tahap sikap terhadap hipertensi. Walau bagaimanapun, hanya status perkahwinan ( $p = 0.044$ ) yang mempunyai perkaitan dengan tahap pengetahuan terhadap hipertensi. Seterusnya, juga tidak terdapat perkaitan antara ciri sosiodemografi [umur ( $p = 0.0269$ ), jantina ( $p = 0.441$ ), status perkahwinan ( $p = 0.687$ ), tahap pendidikan ( $p = 0.356$ ), status pekerjaan ( $p = 0.284$ ), status merokok ( $p = 0.882$ ), sejarah keluarga hipertensi ( $p = 0.395$ ) dan status senaman ( $p = 0.104$ )] dengan tahap sikap terhadap hipertensi. Kesimpulannya, tahap pengetahuan dan sikap terhadap hipertensi dalam kalangan orang dewasa perlu dipertingkatkan dan dipertingkatkan supaya mereka lebih arif tentang pencegahan hipertensi.

**KNOWLEDGE AND ATTITUDE OF HYPERTENSION AMONG ADULTS  
ATTENDING THE OUTPATIENT CLINICS AT HOSPITAL UNIVERSITI  
SAINS MALAYSIA (USM)**

**ABSTRACT**

Hypertension, often known as high blood pressure, is caused by an excessive force of blood on the walls of your blood vessels. A value of 140/90 mmHg or greater is indicative of hypertension. The study aims to assess the level of knowledge and attitude toward hypertension among adults attending outpatient clinics at Hospital USM. A cross-sectional study was conducted on adults aged 18 to 60 years old. Data was collected using a self-administered questionnaire. 165 adults attending the outpatient clinics at Hospital USM who fulfilled the inclusion criteria of this study. They were selected through the convenience sampling method. Data collected were statistically analysed using the SPSS software version 27. The study used descriptive statistics and Pearson Chi-square.

The results show that 119 (72.1%) of participants have a good level of knowledge of hypertension and 84 (50.9%) of participants have a good attitude towards hypertension. However, the good level of attitude is nearly the same as the moderate level of attitude which is 80 (48.5%). There was no association between knowledge and attitude ( $p = 0.079$ ), the result shows only 66 (40.0 %) of participants have good knowledge and good attitude. Lastly, there was no association between sociodemographic factors [age ( $p = 0.197$ ), gender ( $p = 0.232$ ), education level ( $p = 0.057$ ), occupational status ( $p = 0.273$ ), smoking status ( $p = 0.201$ ), family history of hypertension ( $p = 0.996$ ) and exercise status ( $p = 0.174$ )] and the level of attitude toward hypertension. However, only marital status ( $p = 0.044$ ) has an association with the level of knowledge toward hypertension. Next, there is also no association between sociodemographic characteristics [age ( $p = 0.0.269$ ), gender ( $p = 0.441$ ), marital status ( $p = 0.687$ ), education level ( $p = 0.356$ ), occupational status ( $p = 0.284$ ), smoking status ( $p = 0.882$ ), family history of hypertension ( $p = 0.395$ ) and exercise status ( $p = 0.104$ )] with the level of attitude toward hypertension. In conclusion, the level of knowledge and attitude toward hypertension among adults must be enhanced and improved so that they are more knowledgeable about preventing hypertension.

## TABLE OF CONTENTS

<b>CERTIFICATE</b> .....	<b>ii</b>
<b>DECLARATION</b> .....	<b>iii</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>iv</b>
<b>LIST OF TABLES</b> .....	<b>v</b>
<b>LIST OF FIGURES</b> .....	<b>vi</b>
<b>LIST OF ABBREVIATION</b> .....	<b>vii</b>
<b>ABSTRACT</b> .....	<b>ix</b>
<b>CHAPTER 1: INTRODUCTION</b> .....	<b>1</b>
1.1 Introduction.....	1
1.2 Background of Study .....	1
1.3 Problem Statement.....	3
1.4 Research Questions.....	5
1.5 Research Objectives.....	5
1.5.1 General Objective .....	6
1.5.2 Specific Objectives .....	6
1.6 Research Hypothesis.....	7
1.7 Operational and Conceptual Definitions.....	9
1.8 Significance of the Study.....	11
<b>CHAPTER 2: LITERATURE REVIEW</b> .....	<b>12</b>
2.0 Introduction.....	12
2.1 Epidemiology of Hypertension.....	12
2.2 Hypertension.....	13
2.3 Knowledge on Hypertension .....	14
2.4 Attitude on Hypertension.....	15
2.5 Association Between Socio-Demographic Factors and Knowledge and Attitude of Hypertension.....	16
2.5.1 Age.....	16
2.5.2 Gender.....	16
2.5.3 Marital status.....	17
2.5.4 Education Level .....	17
2.5.5 Occupational Status .....	18
2.5.6 Smoking status.....	18
2.5.7 Family History of Hypertension .....	18
2.5.8 Exercise status.....	19

<b>CHAPTER 3: METHODOLOGY AND METHODS .....</b>	<b>23</b>
3.1 Introduction.....	23
3.2 Research Design .....	23
3.3 Research Location.....	24
3.4 Research Duration.....	24
3.5 Research Population .....	24
3.6 Subject Criteria .....	25
3.6.1 Inclusion Criteria .....	25
3.6.2 Exclusion Criteria .....	25
3.7 Sampling Plan.....	26
3.7.1 Sampling Method.....	26
3.7.2 Sample Size Estimation .....	26
3.8 Research Instrument .....	30
3.8.1 Questionnaire.....	30
3.8.2 Translation of Instrument.....	31
3.8.3 Validity and Reliability of Instrument .....	31
3.9 Variable.....	32
3.9.1 Measurement of Variables and Variable Scoring .....	32
3.10 Data Collection Plan .....	34
3.10.1 Flow Chart of Data Collection.....	35
3.11 Data Analysis Plan.....	36
3.12 Ethical Consideration.....	37
3.12.1 Conflict of Interest.....	37
3.12.2 Community Sensitives and Benefit.....	37
3.12.3 Honorarium and Incentives.....	38
<b>CHAPTER 4: RESULTS .....</b>	<b>39</b>
4.1 Introduction.....	39
4.2 Result of the study .....	39
4.2.1 Socio-demographic Characteristics .....	39
4.2.2 Distribution of Knowledge on Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	41
4.2.3 Distribution of Attitude on Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	43
4.2.4 The Level of Knowledge of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	46
4.2.5 The Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	47

4.2.6 Association Between the Level of Knowledge of Hypertension with Sociodemographic Characteristics Among Adults Attending Outpatient Clinics at Hospital USM .....	48
4.2.7 Association Between Sociodemographic Characteristics with the Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM.....	50
4.2.8 Association Between the Level of Knowledge of Hypertension and the Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	51
<b>CHAPTER 5: DISCUSSION .....</b>	<b>52</b>
5.1 Introduction.....	52
5.2 The Level of Knowledge of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM.....	53
5.3 The Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM.....	54
5.4 The Association Between the Level of Knowledge and The Level of Attitude of Hypertension Among Adults Attending Outpatient Clinics at Hospital USM.....	55
5.5 The Association Between Selected Socio-demographic Characteristics with the Level of Knowledge Toward Hypertension Among Adults Attending Outpatient Clinics at Hospital USM.....	56
5.6 The Association Between Selected Socio-Demographic Characteristics with the Level of Attitude Toward Hypertension Among Adults Attending Outpatient Clinics at Hospital USM .....	58
5.7 Strengths and Limitations of the Study.....	59
5.7.1 Strengths of the Study.....	59
5.7.2 Limitations of the Study .....	60
<b>CHAPTER 6: CONCLUSION .....</b>	<b>61</b>
6.1 Introduction.....	61
6.2 Summary of the Study Findings .....	61
6.3 Implications and Recommendations.....	61
6.3.1 Health Education.....	61
6.3.2 Recommendation .....	62
6.4 Conclusion .....	62
<b>REFERENCES.....</b>	<b>64</b>
<b>APPENDICES.....</b>	<b>71</b>
APPENDIX A: Instruments.....	71
APPENDIX B: Research Information .....	75
APPENDIX C: Subject Information and Consent Form .....	80
APPENDIX D: Institutional Approval (Permission to Conduct the Study) .....	83
APPENDIX E: Ethical Approval.....	85

APPENDIX F: School of Languages, Literacies and Translation Approval..... 87

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

This research proposal aims to assess the adults attending outpatient clinic's knowledge and attitude towards hypertension. The first chapter of the proposal will start with the background of the study, problem statement, research questions, research objectives and hypotheses of the study. Finally, the significance of the study and the operational definition of key terms used in this study are described.

### **1.2 Background of Study**

Hypertension is a global health issue leading to morbidity and mortality. A study by (Unger et al., 2020) stated hypertension is defined as the blood pressure of a systolic more than 140 mmHg and diastolic 90 mmHg or higher. If hypertension is untreated, it is very dangerous a study by (Wu et al., 2015) stated if the blood pressure remains elevated, a person might be at risk of heart attack, cardiovascular problems and many more diseases. Furthermore, a study by (Zaki et al., 2021) stated hypertension is a leading cause of death worldwide and one of the most common risk factors for cardiovascular disease. Also, Eunice (2017) stated untreated hypertension is also one of the leading causes of stroke especially in a rural area with the majority of the citizens are old people.

Data by the World Health Organization, (2023) worldwide, stated an estimated 1.28 billion adults aged 30-79 years have hypertension. A study by Zila-Velasque et al. (2023) shows the prevalence of hypertension is higher in Latin American men than in women. A study by Mohammed Nawi et al. (2021) stated that 33.98 % of Asian adults

have hypertension. In Malaysia, a study by Ismail et al. (2023) stated prehypertension and hypertension affected 40.7 % and 38.0 % of Malaysian adults, respectively.

A study by Carey et al. (2018) stated the many ways a person is at risk of getting hypertension, especially a person who practising an unhealthy diet, consuming tobacco and alcohol, and obese people. A person can avoid hypertension by changing their diet and living a healthy lifestyle (Kebede et al., 2022). However, some factors cannot prevent a person from getting hypertension. Non-modifiable risk factors include a family history of hypertension, age over 65 years and co-existing diseases such as diabetes or kidney disease (Ranasinghe et al., 2015). Most hypertensive persons sometimes do not experience any symptoms (World Health Organization, 2023). Usually, the symptoms of high blood pressure include headaches, impaired vision, chest pain, and others (Pardoel et al., 2023).

Hypertension is a leading cause of death worldwide and one of the most common risk factors for cardiovascular disease (Zaki et al., 2021). A study by Abdul-Razak et al. (2016) stated hypertension is the leading cardiovascular risk factor globally as well as in Malaysia. The prevalence of hypertension based on Almomani et al. (2022) varies based on status, such as economic status, educational level, and relationship status. For example, the prevalence of hypertension was higher among the married group (Zaki et al., 2021).

A study by Alshammari et al. (2023) stated evaluating the general public's understanding is essential since it affects not just hypertension patients but also the public, who may be involved in their care. Moreover, the nurses' involvement began with blood pressure measurement and monitoring, as well as educating the public members, and has grown to become one of the most effective strategies for improving hypertension control (Himmelfarb et al., 2016). In addition, nurses are now involved in all aspects of



hypertension management, such as detection, referral, and follow-up, diagnostics, medication management, patient education, counselling, skill development, care coordination, clinic or office management, population health management, and patient-centred care (Himmelfarb et al., 2016).

### **1.3 Problem Statement**

As stated above, the prevalence of hypertension is very alarming and needed to be controlled. According to Mohammed et al. (2021) stated the basis of hypertension control and prevention is people's knowledge and attitude toward hypertension. Knowledge of hypertension is essential for making the behavioural changes needed to prevent and manage the condition (Almomani et al., 2022). It is important to identify the most significant knowledge gaps among the public to promote better educational strategies regarding hypertension (Almomani et al., 2022). Furthermore, an individual with a higher level of knowledge demonstrates more positive behaviour toward health-related issues (Eunice, 2017). The other study by Buang et al. (2019) stated the low score of knowledge was mainly due to the low socio-economic class and illiteracy of the subjects.

Regarding the attitude towards hypertension, a study by Kebede et al. (2022) stated even though 48.8% of the population shows a good attitude, it is still inadequate since 40.4% of the population shows a negative attitude toward hypertension. A study by Haron et al. (2021) shows that knowledge and attitude towards hypertension also have differences based on the age of a person. It is concerning that younger people were less aware of their hypertension status (Abdul-Razak et al., 2016). Also, younger adults had a lower level of knowledge compared to the older respondents (Buang et al., 2019).

However, little is known about the level of knowledge and attitude of adults attending outpatient clinics at Hospital Universiti Sains Malaysia (USM) regarding hypertension. More information about hypertension needs to be taught to the public to decrease the prevalence of hypertension in the community. Thus, assessing the knowledge and attitude of the public towards hypertension is crucial in order to prevent the increment of hypertension among the community and increase the knowledge about the disease.

## **1.4 Research Questions**

The research questions for this study are as below:

- i. What is the level of knowledge about hypertension among adults who attended outpatient clinics in Hospital USM?
- ii. What is the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM?
- iii. Is there any association between the level of knowledge and the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM?
- iv. Is there any association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of knowledge toward hypertension among adults who attended outpatient clinics in Hospital USM?
- v. Is there any association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM?

## **1.5 Research Objectives**

A research objective describes what researchers hope to accomplish at the conclusion of a research project or study (Polit & Beck , 2010)

### **1.5.1 General Objective**

The aim of this study is to assess knowledge and attitudes toward hypertension among adults who attend outpatient clinics in Hospital USM.

### **1.5.2 Specific Objectives**

The following specific objectives of this study are:

- i. To assess the level of knowledge toward hypertension among adults who attended outpatient clinics in Hospital USM
- ii. To assess the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM
- iii. To determine the association between the level of knowledge and the level of attitude toward hypertension among adults who attended outpatient clinic in Hospital USM
- iv. To determine the association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status family history of hypertension and exercise status) with the level of knowledge toward hypertension among adults who attended outpatient clinic in Hospital USM
- v. To determine the association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM

## 1.6 Research Hypothesis

Hypothesis 1 : (H<sub>0</sub>): There is no significant association between the level of knowledge and the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM.

(H<sub>A</sub>): There is a significant association between the level of knowledge and the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM.

**Hypothesis 2** (H<sub>0</sub>): There is no significant association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of knowledge toward hypertension among adults who attended outpatient clinics in Hospital USM.

(H<sub>A</sub>): There is a significant association between socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of knowledge toward hypertension among adults who attended outpatient clinics in Hospital USM.

**Hypothesis 3** (H<sub>0</sub>): There is no significant association between selected socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family

history of hypertension and exercise status) with the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM.

(HA): There is a significant association between socio-demographic characteristics (age, gender, marital status, occupational status, education level, smoking status, family history of hypertension and exercise status) with the level of attitude toward hypertension among adults who attended outpatient clinics in Hospital USM.

## 1.7 Operational and Conceptual Definitions

The operational terms used in this research proposal are shown below :

*Table 1. 1 The Operational and Conceptual Definition*

<b>Terms</b>	<b>Operational Definition</b>	<b>Conceptual Definition</b>
Knowledge	understanding of or information about a subject that can be by experience or study, either known by one person or by people generally (Cambridge Dictionary, 2023).	In this study, the knowledge of adults attending outpatient clinics hospital USM will be assessed using a self-administered questionnaire adapted from (Buang et al., 2019).
Attitude	a feeling or opinion about something or someone, or a way of behaving that is caused by this (Cambridge Dictionary, 2023).	In this study, the attitude of adults attending outpatient clinics hospital USM will be assessed using a self-administered questionnaire adapted from (Buang et al., 2019).

<p>Adult</p>	<p>a person or animal that has grown to full size and strength (Cambridge Dictionary, 2023).</p>	<p>In this study, the data will be collected from adults attending outpatient clinics in Hospital USM by using a self-administered questionnaire adapted from (Buang et al., 2019). The adults involve the patient who seeks treatment at the outpatient clinics, the caregiver and relatives who accompany the patient.</p>
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## **1.8 Significance of the Study**

The findings from this study was determine the knowledge and attitude among adults attending outpatient clinics in Hospital USM towards hypertension. Understanding hypertension is essential for improving healthy lifestyle choices and altering an individual's perception of their risk, both of which are critical for managing hypertension and avoiding its consequences. It is hoped that the findings of the study can contribute to the increment of knowledge and improvement of attitudes towards hypertension among adults in the community.

Moreover, it may also be used as a guideline for nurses to use during educating patients in the future. As nurses' responsibilities increase from time to time, health education about hypertension plays an essential role in the nursing field to promote better health to the public. Therefore, assessing the level of hypertension knowledge and attitude among adults is required, particularly in Kubang Kerian, Kelantan, Malaysia.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.0 Introduction**

This chapter will present a review of the literature related to knowledge and attitudes toward hypertension among adults who attend outpatient clinics at Hospital USM. This chapter is organized into six sections covering topics most relevant to answering this study's research questions, meeting its objectives and supporting or disagreeing with its hypotheses. The first section focuses on hypertension. This part will discuss the level of knowledge and attitude toward hypertension from adults. Next, the association between socio-demographic factors such as age, marital status, education level, occupational status, smoking status, and exercise status with the level of knowledge toward hypertension will be discussed thoroughly. The last part of this chapter will focus on the conceptual framework of this study.

### **2.1 Epidemiology of Hypertension**

According to a study by Mills K, Bundy J, Kelly T, Reed J, Kearney P, Reynolds K, et al., (2016) one-third of adults suffer from hypertension. In 2021, according to Zaki et al. (2021), hypertension affects 33.98 % of Asian adults. Based on Neupane et al. (2014) the prevalence of hypertension in South Asian countries varies, such as in Pakistan at 25 % and Bhutan at 23.9%. Looking at the prevalence of hypertension in Southeast Asia countries, hypertension was reported in 33.98 % of the community and 32.45 % of school-aged adolescents (Mohammed Nawi et al., 2021). According to the most recent data in Malaysia by National Health and Morbidity Survey, (2019) the prevalence of hypertension was 30.0% in 2019.

## 2.2 Hypertension

Hypertension happens when the systolic or diastolic blood pressure (BP) is elevated above normal limits (Saad Madhi et al., 2023). The normal range of BP for individuals aged 18 to 65 years old is below 130 mmHg but not less than 120 mmHg for systolic BP (Jordan et al., 2018). Furthermore, the 2017 guideline recommends a blood pressure treatment goal of 130/80 mmHg for all adults with hypertension (Bundy et al., 2019). However, hypertension has recently been defined as a blood pressure of 140/90 mm Hg or higher (Taler, 2018).

Stroke, accelerated coronary and systemic atherosclerosis, heart failure, chronic kidney disease, and death from cardiovascular causes are all risk factors for hypertension (Taler, 2018). High sodium intake, weight gain and obesity, excessive alcohol consumption, and the use of certain medications, particularly nonsteroidal anti-inflammatory drugs (NSAIDs), stimulants, and decongestants, are all associated with an increased risk of hypertension and its severity (Taler, 2018). Untreated hypertension can lead to damages of the organ (Taler, 2018). Hypertension can cause damage to the brain, eye, heart, kidney failure, and vascular diseases (Taler, 2018).

Hypertension is becoming more common, particularly in low and middle-income countries (LMICs) (Mills et al., 2020). According to estimates, 31.1 % of adults (1.39 billion) worldwide had hypertension in 2010 (Mills et al., 2020). Adult hypertension prevalence was higher in LMICs (31.5 %, 1.04 billion people) than in high-income countries (349 million people) (Mills et al., 2020). In another research by Mills et al. (2016) the East Asia and Pacific region had the highest absolute burden of hypertension in 2010, with 439 million hypertensive people, while the Middle East and North Africa region had the lowest absolute burden of hypertension. In Malaysia, nearly one in every two Malaysians over the age of 30 had hypertension (Abdul-Razak et al., 2016).

### **2.3 Knowledge on Hypertension**

According to Almomani et al. (2022) knowledge of hypertension is an important factor that can improve healthy lifestyle changes and change a person's perception of their risk, both of which are important in controlling hypertension and preventing its complications. Based on Eunice (2017) stated an individual's higher level of knowledge demonstrates more positive behaviour toward health-related issues. Assessing the public's knowledge is important because knowledge is required not only for hypertensive patients but also for the general public who may be involved in their care (Almomani et al., 2022).

The level of hypertension knowledge among public adults must be investigated in order to develop appropriate educational and self-management programmes to prevent and control hypertension in the future (Almomani et al., 2022). A study done by Gong et al. (2020) stated approximately half of the participants were unaware of the hypertension diagnostic criteria, the Recommended Daily Intake (RDI) of salt, or that heart failure was a complication of hypertension. Also, one-fourth of the participants were unaware that smoking and lack of physical activity were linked to high blood pressure (Gong et al., 2020).

A study in Myanmar by Pardoel et al. (2023) stated the majority of participants appear to be fairly well-informed about hypertension (88.2 %). However, members of community groups performed the worst in the knowledge of symptoms of hypertension but scored the highest for the risk factor of hypertension (Pardoel et al., 2023). In Selangor, 63.6 % and 97.3 % of respondents were aware that smoking and dietary habits are risk factors for hypertension, which is good (Buang et al., 2019). However, this study

also discovered that roughly three-quarters of respondents were unaware that males have a higher prevalence of hypertension than females (Buang et al., 2019).

## **2.4 Attitude on Hypertension**

According to Kebede et al. (2022) in hypertension patients, attitude is a complex mental state involving beliefs, feelings, and values regarding lifestyle modification. The attitude towards hypertension is different based on the country. A study in East Africa stated among the total study participants, 55.3 % of the population strongly agreed that quitting smoking and avoiding excessive alcohol consumption helps to control hypertension (Kebede et al., 2022). In another study, positive responses to questions about hypertension prevention attitudes were generally around 80% or higher (Gong et al., 2020). However, the community in Shanghai have the least awareness of the risk of smoking on hypertension which is 79.2% of the population (Gong et al., 2020).

A study by Bogale et al. (2020) stated, that unawareness and a negative attitude toward lifestyle modification (LSM), an important part of hypertension management, continue to be significant challenges. Respondents with a positive attitude toward LSM recommended for hypertension management were more than nine times more likely to practice LSM than those with a negative attitude (Bogale et al., 2020). Regarding nutritional attitude in managing hypertension, a study by Ngai et al. (2019) stated almost a quarter of study participants said that a good nutritional attitude was not important in hypertension management, and more than a quarter said that some lifestyle practises, such as drinking alcohol, smoking cigarettes, and doing some physical exercise, were not important in hypertension management.

The attitude among residents in housing area in Selangor (Buang et al., 2019) is different compared to Kenya (Ngai et al., 2019). Almost all of the respondents around

94.5 % agreed that eating healthy foods and getting enough sleep per day would make them less likely to develop hypertension in the future (Buang et al., 2019). Also, among the residents in Bangi, the majority of subjects (75.5 %) reported a favorable attitude toward a lower salt intake and believed that it will benefit their health in the long run (Haron et al., 2021).

## **2.5 Association Between Socio-Demographic Factors and Knowledge and Attitude of Hypertension**

### **2.5.1 Age**

A study by Almomani et al. (2022) stated the level of knowledge regarding hypertension is better among older people aged more than 45 years old. Based on Khader et al. (2019) more knowledge on older people may be because the prevalence of hypertension and the frequency with which people visit healthcare facilities due to other comorbidities, giving them a better chance of being informed about hypertension. However, a study in Oman by Anwar & Jamal Moslhey (2018), stated the level of knowledge among young adults age under 30 years old is higher than the adults aged 31 to 50 years old. From the perspective of attitude towards hypertension, Mohammed et al. (2021) stated senior citizen have better attitude compared to younger citizen.

### **2.5.2 Gender**

Anwar & Jamal Moslhey (2018) stated the level of knowledge among women is higher than men. This is because a study by Gong et al. (2020) stated women were more willing than men to actively seek health-related information and make lifestyle changes. Since women have knowledge on hypertension, the proportion of women who consume enough fresh fruit was 48.2 %, which was higher than the proportion of men (Gong et al.,

2020). Data from another place such as in Jordan, stated the percentage of knowledge on hypertension is higher in women rather than men (Khader et al., 2019). From the attitude perspective, Bacha & Abera (2019) stated that male have higher level of attitude towards hypertension rather than female.

### **2.5.3 Marital status**

A study by Segawa et al. (2021) suggested that married people have more knowledge about hypertension than unmarried people because they benefit from their spouses' social support and health behaviours. A cross-sectional study in Saudi Arabia by Algabbani & Algabbani (2020) stated unmarried people knew less about the disease and its complications than married people. Another study also mentioned married people had significantly higher knowledge of hypertension than single, separated, divorced, or widowed people (Mohammed et al., 2021). Also, Mohammed et al. (2021) stated higher level of attitude showed by married group towards hypertension.

### **2.5.4 Education Level**

The increase in education level increased knowledge (Anwar & Jamal Moslhey, 2018). Other research also stated those with tertiary and secondary education are more likely to have better knowledge on hypertension than those with no formal education (Chimberengwa & Naidoo, 2019). Furthermore, Sarwar et al. (2018) stated in rural area at Pakistan, the level of knowledge on hypertension is high among participants in the tertiary education. However, the level of knowledge on hypertension among people who received secondary school and pre-university education is moderate (Mohammed et al., 2021). For the attitude side, a study by Machaalani et al. (2022) stated people with a higher educational level shows good attitude towards hypertension.

### **2.5.5 Occupational Status**

Occupational status is another socio-demographic factor that may influence the level of knowledge on hypertension, which is a major risk factor for cardiovascular disease and mortality (Zaki et al., 2021). A cross-sectional study in Malaysia found that professional and managerial occupations had significantly higher levels of knowledge, awareness, and attitude than other occupations (Mohammed et al., 2020). However, another study stated people with lower occupational status had higher hypertension knowledge than people with higher occupational status, as they may have more exposure to hypertension screening and treatment (Wiernik et al., 2013). Based on Buang et al. (2019) employed people have a good attitude towards hypertension compared to unemployed people.

### **2.5.6 Smoking status**

Smokers may have less knowledge about hypertension than nonsmokers because smoking is associated with a variety of health risks (Levine et al., 2018). The health risks include cardiovascular issues (Forouzanfar et al., 2017). A study by Gao et al. (2023) suggested that because smokers may have less access to health information and education, they are less aware of the importance of health behaviours and have less motivation to manage their hypertension so smoking status is negatively associated with hypertension knowledge. Furthermore, Machaalani et al. (2022) stated a non-smoker individual have a good attitude compared to a smoker individual.

### **2.5.7 Family History of Hypertension**

Patients with a family history of hypertension had a higher level of knowledge than those without a family history (Lugo-Mata et al., 2017). Also, another study by Swed et al. (2023) found the level of knowledge on hypertension is higher among people with



a family history of hypertension. Having a family history of hypertension, on the other hand, does not increase overall knowledge of hypertension because knowledge of hypertension is sometimes obtained from a variety of sources, including medical professionals, health organisations, and educational resources (Biggers & Sherrell, 2023). A study in India by Kumaraswamy et al. (2022) stated individuals with a family history of hypertension may be more aware of the condition and its associated risks, influencing their attitudes toward the disease.

### **2.5.8 Exercise status**

A study by Abu et al. (2018) found patients with low hypertension knowledge were less likely to engage in heart-healthy lifestyle practises than patients with high hypertension knowledge. A study by Zhu et al. (2022) recommended adults are advised to engage in physical activity as a healthy lifestyle choice to prevent and treat hypertension. There is strong evidence that regular exercise can lower blood pressure, particularly in hypertensive individuals (Sharman et al., 2015). Also, frequent exercise is associated with a positive attitude toward hypertension; however, individual attitudes can vary and are influenced by a variety of factors (Rajan et al., 2019).

## 2.6 Theoretical Framework

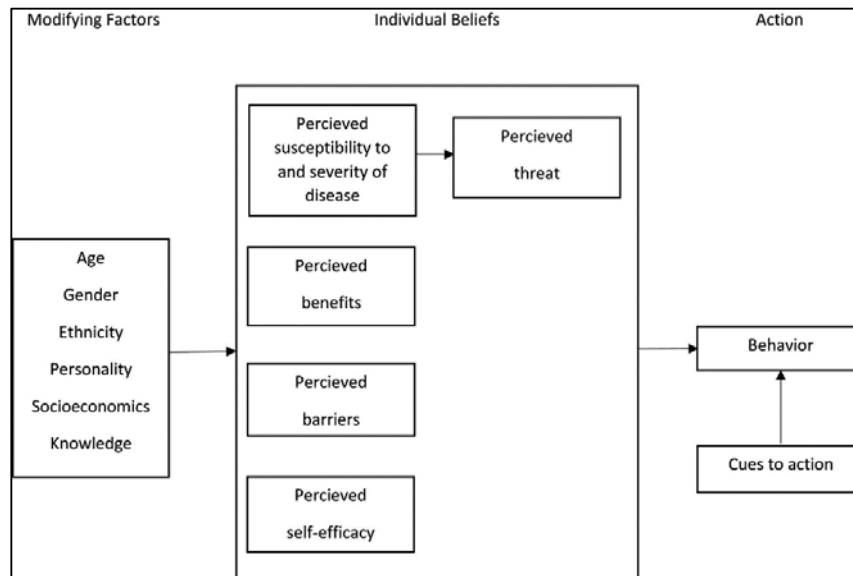


Figure 2. 1 The Theoretical Framework

The health belief model (HBM) serves as the conceptual framework for this study. The HBM was developed in the 1950s by social psychologists at the United States Public Health Service to help explain why so many people refused to participate in disease prevention and detection campaigns. The model's theoretical foundation is reviewed here to help readers understand its rationale for certain concepts and their relationships, as well as its strengths and weaknesses. Although the model evolved gradually in response to very practical public health concerns, it did so in accordance with psychological theory (Glanz et al., 2008).

HBM is composed of some elements that are perceived to be susceptible. Perceived severity, perceived benefits, perceived barriers, cue to action, and self-efficacy are all factors to consider. Individuals' perceptions of their vulnerability to a disease or condition are referred to as perceived susceptibility. Then there is perceived severity, which is a feeling about the significance of being sick or not receiving treatment.

Following that, perceived benefits is a belief in the efficacy of healthy behaviour, and perceived barriers is a belief in the financial and emotional consequences of the proposed action plan. In contrast, a cue to action is a willingness to act in response to the perception of susceptibility and benefit. Finally, self-efficacy is a belief in one's own ability to act (Glanz et al., 2008).

## **2.7 Conceptual Framework**

The conceptual framework of this study was adapted based on the HBM above. Based on the figure below, HBM explores the modifying factors of the study which are the socio-demographic factors (age, gender, marital status, occupational status, education level, smoking status, exercise status). Based on individual beliefs, the level of knowledge and attitude of hypertension among the public who attend outpatient clinics at Hospital USM will be assessed, the prevalence of knowledge and attitude of hypertension, factors that lead to hypertension, effective methods for preventing hypertension, and the need for hypertension education program. Figure 2.2 shows the HBM used in this study.

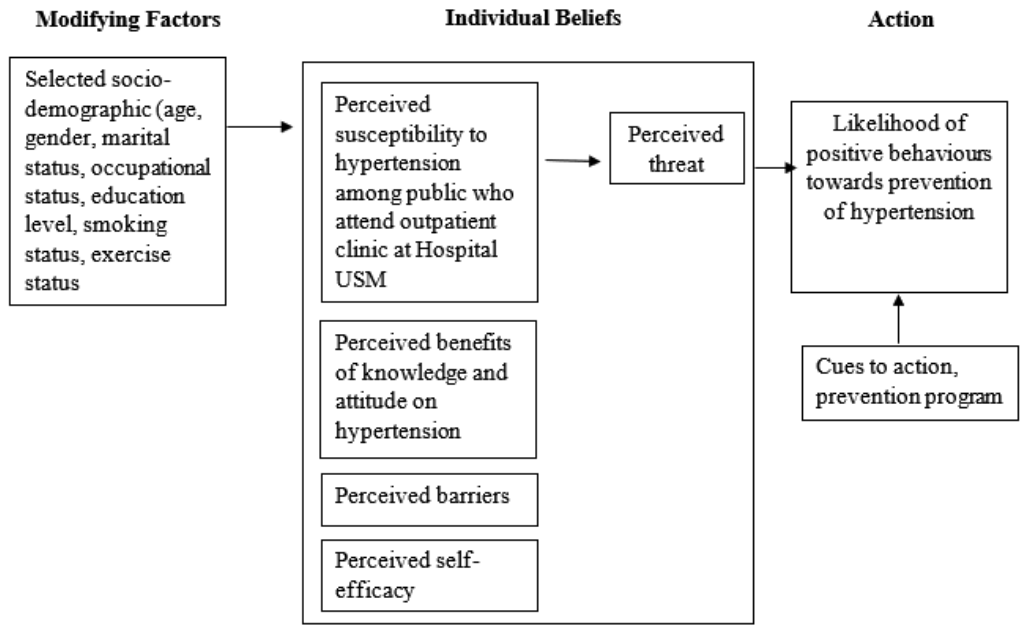


Figure 2. 2 The Adapted Theory of Health Belief Model (HBM)

## **CHAPTER 3: METHODOLOGY AND METHODS**

### **3.1 Introduction**

This chapter will explain the approach and reasoning behind the research methodology chosen. Choosing and comprehending an appropriate research design is essential for achieving the study's objectives. The chapter begins with a description of a cross-sectional design and the reason for choosing this approach. Next, the section is followed by a description of the study setting, population, participant selection criteria, sampling plan, sample size determination, and instrumentation, including ethical considerations right through data collection methods. This chapter will also involve a section explaining the proposed statistical analyses used with the quantitative data.

### **3.2 Research Design**

This study applied the cross-sectional study design to assess knowledge and attitude of adults attending outpatient clinics at Hospital USM regarding hypertension. The advantages of cross-sectional study include not being costly to perform, does not require a lot of time and can be carried out at a one-time point or over a short period (Levin, 2006).

### 3.3 Research Location

In this study, the data was collected among all adults who attend outpatient clinics except at the Psychiatric Clinic in Hospital USM situated in Kubang Kerian, Kelantan. Hospital USM is a referral hospital located in Kubang Kerian, Kelantan.

*Table 3. 1 List of Outpatient Clinics in Hospital USM*

<b>Outpatient Clinics in Hospital USM</b>
<ul style="list-style-type: none"><li>• Klinik Rawatan Keluarga (KRK)</li><li>• Klinik Pakar Perubatan (KPP)</li><li>• Ophthalmology Clinic</li><li>• Surgical Outpatient Department (SOPD) Clinic</li><li>• Orthopedic Clinic</li><li>• Ears, Nose, Throat (ENT) Clinic</li><li>• Obstetrics &amp; Gynecology (O&amp;G) Clinic</li></ul>

### 3.4 Research Duration

This study was commenced from October 2023 until August 2024.

### 3.5 Research Population

The target population was adults who came to outpatient clinics at Hospital USM and fulfilled the study criteria.