

**ILLNESS PERCEPTION AND TREATMENT
BELIEF AMONG HYPERTENSIVE PATIENT IN
MEDICAL WARD AT HOSPITAL UNIVERSITI
SAINS MALAYSIA**

by

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**Dissertation submitted in partial fulfillment of the
requirements for the degree of Bachelor of Health
Science (Nursing)**

June 2013

DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.



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16 June 2013

CERTIFICATE

This is to certify that the dissertation entitled 'The relationship between illness perception and treatment belief among hypertensive patients in medical wards in Hospital USM is the bonafide record of research work done by Norahidayah binti Salleh, matric number: 105136 during the period of September 2012 to May 2013 under my supervision. This dissertation submitted in partial fulfillment for the Degree of Bachelor of Science (Health) in Nursing. Research work and collection of data belongs to Universiti Sains Malaysia (USM).

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ABBREVIATIONS

CVD	-	Cardiovascular disease
WHO	-	World Health Organization
NCD	-	Non-communicable disease
NHMS III	-	Third National Health and Morbidity Survey
USM	-	Universiti Sains Malaysia
SRM	-	Self-Regulation Model
SPSS	-	Statistical Package Social Science

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**ILLNESS PERCEPTION AND TREATMENT BELIEF AMONG
HYPERTENSIVE PATIENT IN MEDICAL WARD AT HOSPITAL UNIVERSITI
SAINS MALAYSIA (Hospital USM)**

ABSTRACT

Hypertension is a major public health issue that remains asymptomatic until complications develop. Evidence can be found in the literature that illness perception was associated with treatment belief. Objectives of this study were to determine the association between illness perception and treatment belief among hypertensive patient. This study also determined the association between socio-demographic data and treatment belief. This study was done on 95 hypertensive patients were recruited in wards 7 Utara and 7 Selatan. The Self-Regulation model was used as the theoretical framework of this study. Data were analyzed using Pearson Chi-square test. The results showed specific-necessary belief about medications was not associated with illness perception with p-value is 0.175 ($p > 0.05$). However, the result in this study found that illness perception was significantly associated with specific-concern belief about medications where p-value is 0.00 ($p < 0.05$). Certain socio-demographic data were found to be associated with specific-necessary and specific-concern treatment belief. The result of this study showed that specific-necessity treatment belief was associated only with gender and monthly income. Specific-concern treatment belief was found to be associated with age, monthly income and education level. These results suggest that the patient perception of hypertension influenced patients decision on taking medication when they think of side effects and harmful of medication. This also influenced by age, income and knowledge.

**PERSEPSI TERHADAP PENYAKIT DAN KEPERCAYAAN KEPADA
RAWATAN DALAM KALANGAN PESAKIT TEKANAN DARAH TIGGI DI
WAD MEDIKAL DI HOSPITAL UNIVERSITI SAINS MALAYSIA (Hospital
USM)**

ABSTRAK

Tekanan darah tinggi adalah merupakan satu isu utama kesihatan awam yang tidak mempunyai simptom sehingga wujudnya komplikasi. Banyak bukti didapati dalam kajian-kajian terdahulu bahawa persepsi penyakit telah banyak dikaitkan dengan kepercayaan rawatan. Objektif kajian ini adalah untuk menentukan hubungan antara persepsi penyakit dan kepercayaan rawatan dalam kalangan pesakit takanan darah tinggi. Kajian ini juga menentukan hubungan antara data sosio-demografi dan kepercayaan rawatan. Kajian ini telah dijalankan ke atas 95 pesakit tekanan darah tinggi di wad 7 Utara dan 7 Selatan. Model Kendiri telah digunakan sebagai rangka kerja teori kajian ini. Data dianalisis menggunakan ujian *Pearson Chi-Square*. Hasil kajian menunjukkan kepercayaan tertentu-keperluan tentang ubat-ubatan tidak dikaitkan dengan persepsi penyakit dengan nilai p adalah 0.175 ($p > 0.05$). Walau bagaimanapun, hasil kajian ini mendapati bahawa persepsi penyakit nyata dikaitkan dengan kepercayaan tertentu-kebimbangan mengenai ubat-ubatan di mana nilai p adalah 0.00 ($p < 0.05$). Seseengah data sosio-demografi didapati dikaitkan dengan kepercayaan rawatan tertentu-keperluan dan kepercayaan rawatan tertentu-kebimbangan. Hasil kajian ini menunjukkan bahawa kepercayaan rawatan tertentu-keperluan dikaitkan hanya dengan jantina dan pendapatan bulanan. Kepercayaan rawatan tertentu-kebimbangan didapati dikaitkan dengan usia, pendapatan bulanan dan tahap pendidikan. Keputusan ini menunjukkan bahawa persepsi pesakit tekanan darah tinggi mempengaruhi keputusan pesakit mengambil ubat-ubatan

apabila mereka berfikir tentang kesan sampingan dan bahaya ubat tersebut. Ini juga dipengaruhi oleh umur, pendapatan dan pengetahuan.

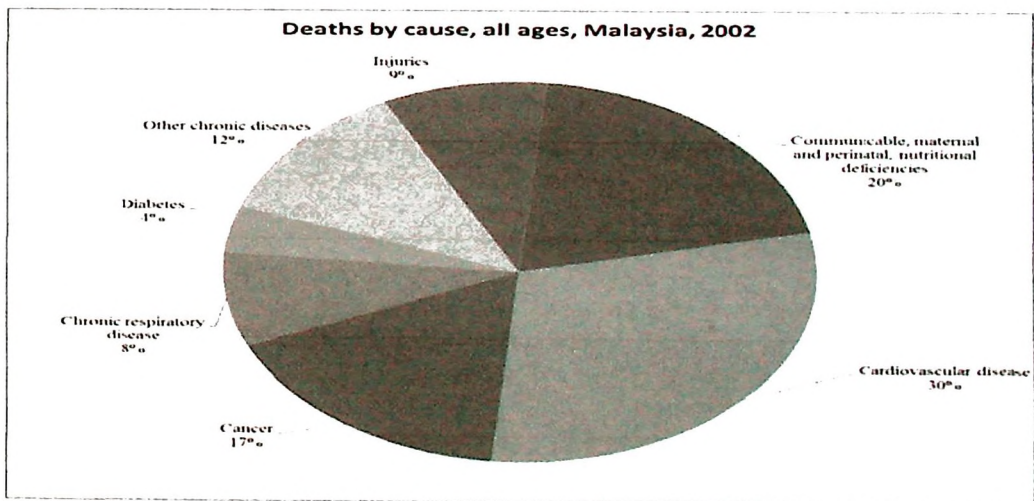
CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Hypertension is a major public health issue and one of the most common causes of morbidity and mortality worldwide (Figueiras, Marcelino, Claudino, Cortes, Maroco & Weinman, 2010). Hypertension remains asymptomatic until complications such as coronary artery disease, stroke and renal failure develop (Anis Rehman, Tariq Rehman, Mohammad Ateeb Shaikh & Syed Anwar Ahmad Naqvi, 2011). Hypertension is also the most common leading cause of death in industrialized countries. It becomes the most common treatable risk factor for cardiovascular disease (CVD) and globally responsible for 30% of all deaths as shown in Figure 1.

Figure 1: Percentage of chronic diseases in Malaysia



Source: WHO 2011 (The Impact of Chronic Disease in Malaysia)

However, in United States (US), the National High Blood Pressure Education Program of the United States (US) had shown that the detection, treatment and control of hypertension in its population for over last two decades were successfully increased. The decline in cardiovascular disease mortality in the US is due to this progress in hypertension detection and control.

But, the prevalence of hypertension has been widely reported in many countries in the world. The prevalence of hypertension in Turkey is involving approximately 30% of the general population (Hacihasanoglu and Gozum, 2011). Besides that, hypertension becomes the most common chronic diseases in Korea and it is reported that approximately 25% of the general population are having hypertension (Rampal, Azhar & Rahman, 2008).

Apart from that, according to the World Health Organization (WHO) in 2008, it was estimated that non-communicable disease (NCD) affecting 36 million of the 57 million worldwide. Non-communicable diseases which include the hypertension are the leading causes of preventable morbidity and related disability in public (Erkoc, Isikli, Metintas & Kalyoncu, 2012).

Beside that, it has been reported that the total number of hypertensive adults was 972 million where 639 million were in less economically developed countries and 333 million were in more economically developed countries. Furthermore, hypertension is one of the causes of premature death worldwide and is accounting for 7.6 million deaths in 2001. Besides, hypertension was predicted to increase by 60% to a total of 1.56 billion adults by year 2025 (Erkoc *et al.*, 2012) and remains an important public health problem

that is projected to become a greater global burden in the next 20 years (Jayasinghe, 2009).

World Health Organization (WHO) in 2004 stated that the total number of estimated deaths resulting from all types of cardiovascular diseases and hypertensive heart disease recorded for Nigeria was 201,500 and 10,700 respectively and placed Nigeria in the 16th position globally (Osamor and Owumi, 2011). In fact, there is a growing health problem in US and United Kingdom where the numbers of estimated death from cardiovascular diseases are 922,700 and 229,000 respectively. Besides, in US, uncontrolled blood pressure has been a major risk factor that contributes to more than 500,000 cases of stroke and one million myocardial infarction cases in each year.

Besides, Malaysia is also experiencing a rising incidence of cardiovascular disease (Lim and Morad, 2004). In the range of 18 years from 1975 to 2005, the population of Malaysia has doubled from 12.3 to 26.7 million and between 2005 and 2010 there is an expected increase of 8.3% to 28.96 million. So, in the increasing number of Malaysians, chronic medical conditions are on the rise (Amal Nasir, Paramesarvathy, Tee, Gurpreet & Karuthan, 2011).

1.2 Problem Statement

Hypertension is called the "silent killer" because it occurs with no warning signs or symptoms and many people do not realize that they are having hypertension (World Health Organization, 2011). Hypertension remains asymptomatic and it is usually may attributed to severe health problems such as congestive heart failure, cardiovascular

disease, renal failure, stroke, cognitive decline, dementia and even death in the population around the world (Abdullahi and Amzat, 2011).

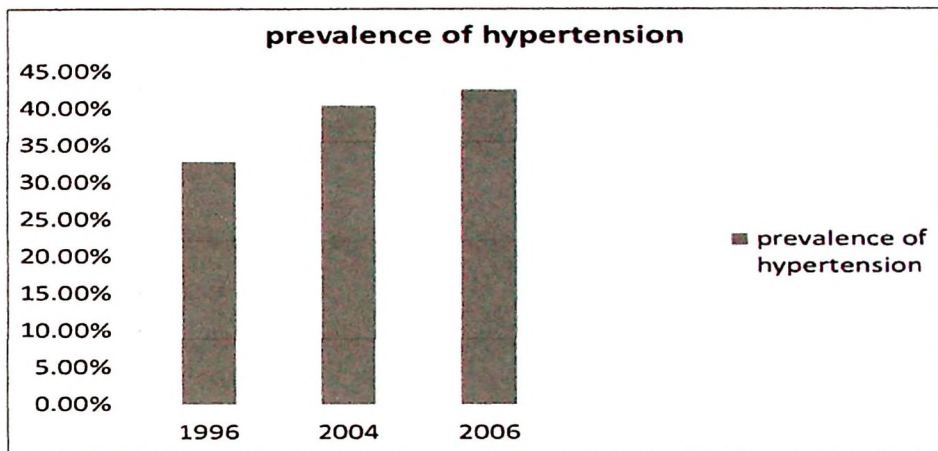
The Turkish Hypertension Prevalence Study in 2003 also found that the prevalence of hypertension in Turkey was 31.8% where 27.5% in men and 36.1% in women among adults aged 18 years and over. Then, it is reported that only 40.7% were aware of their disease and 31.1% of hypertensive patients were on antihypertensive treatment. The controlled blood pressure was observed in 20.7% of patients who were aware of their high blood pressure and receiving antihypertensive treatment. There is only 8% of all hypertensive patients controlled their blood pressure (Erkoc *et al.*, 2012). While, in 2004 National Burden of Disease Study stated that controlling high blood pressure in adults aged 30 years and over would prevent deaths in 20.4% of men and 30.8% of women (Erkoc *et al.*, 2012).

Among people worldwide, the proportion of hypertensive patients with properly controlled blood pressure is reportedly low. For example, only 24% of those affected with hypertension in the United States meet the recommended target of achieving a blood pressure less than 140/90 mm Hg. Besides, similar situation is even worse in Pakistan, where less than 3% of those affected with hypertension had a blood pressure of 140/ 90 mmHg or below (Anis Rehman *et al.*, 2011). It seems that hypertensive patients are not aware about the blood pressure control.

In Malaysia, the prevalence of hypertension amongst adults aged 30 years and above has increased from 32.9% in 1996 to 40.5% in 2004 and to 42.6% in 2006 (Rampal *et al.*, 2008) as shown in Figure 2. The Malay people had significantly higher prevalence compared to Chinese and Indians. At present, it was estimated that there are 4.8 million

individual with hypertension in Malaysia. The estimated figure of hypertension worldwide is a staggering 1 billion individuals (Ismail Merican, 2008).

Figure 2: Prevalence of hypertension in Malaysia



Source: Rampal *et al.*, 2008, prevalence, awareness, treatment and control of hypertension in Malaysia: A national study of 16,440 subjects. Journal of the Royal Institute of Public Health

The Third National Health and Morbidity Survey (NHMS III) of 2006 was conducted to find out the prevalence of chronic illness in Malaysia and hypertension was the most common chronic illness. According to the Figure 3 below, it was reported that hypertension has been the highest prevalence followed by diabetes, stroke, asthma and heart disease (Amal Nasir *et al.*, 2011).

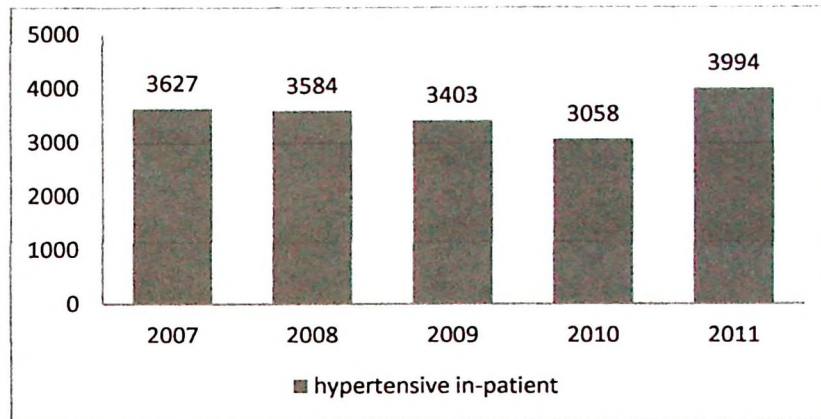
Figure 3: Prevalence of chronic illness by type of disease, NHMS III, Malaysia, 2006

Chronic disease	Frequency	Total Estimated in population	Estimate (%)
Hypertension	4,463	1,664,755	7.9
Diabetes mellitus	2,206	841,528	4.0
Stroke	137	53,016	0.3
Arthritis	433	159,808	0.8
Tuberculosis	136	47,499	0.2
Asthma	1,907	716,672	3.4
Kidney failure	193	69,841	0.3
Thyroid disease	192	71,020	0.3
Heart disease	665	251,622	1.2
Anemia	146	52,329	0.3
Blood disorders	54	20,713	0.1
Migraine	389	144,290	0.7
Cancer	159	60,963	0.3
Backache	146	52,916	0.3
SLE+	23	8,737	0.1
Parkinson's disease	14	5,723	0.1
Skin disease	189	68,636	0.3
Total	8,764	3,277,808	15.5

Source: Amal Nasir *et al.*, 2011, Prevalence of Chronic Illness and Health Seeking Behavior in Malaysian Population: Results from the Third National Health Morbidity Survey (NHMS III) 2006

According to Medical Record Unit Hospital Universiti Sains Malaysia (Hospital USM), Kubang Kerian, Kelantan, the total of hypertensive patients admitted to HUSM was also high for every year. Figure 4 below shows the statistics of hypertensive in-patients for the latest five years (Medical Record Unit Hospital USM, 2012).

Figure 4: Statistic of hypertensive patient in HUSM



Source: Medical Record Unit Hospital USM, 2012

The Third National Health and Morbidity Survey (NHMS III), 2006 found that close to two thirds of individuals with hypertension in Malaysia were unaware that they have hypertension. Despite the treatment rate among those who have been diagnosed had increased, the control rate of hypertension is still poor. According to NHMS III, there is only 26% of patients with drug treatment had achieved the targeted blood pressure.

This finding is consistent with another survey conducted by the Institute of Health Management of the Ministry of Health on the outpatient management of hypertension in government clinics. It shows that only 28.5% of hypertensive patients who received treatment in government clinics are achieved the target blood pressure (Ismail Merican, 2008). Based on these finding, it seems that the control of high blood pressure is still inadequate in the population.

There are several potential reasons for inadequate control of blood pressure such as demographic factors, health beliefs, presence of other chronic illnesses, lack of hypertension awareness and lack of knowledge about various aspects of hypertension

(Erkoc *et al.*, 2012). In example, the lack of knowledge of appropriate target blood pressure has been shown to be associated with poor blood pressure control (Viera, Cohen, Mitchell & Sloane, 2008).

Besides, the importance of understanding illness perceptions is also being highlighted. A related study found that there is strong association between illness perceptions and the later use of healthcare (Petrie, Jago & Devcich, 2007). Generally, when patients are diagnosed with an illness, they will develop an organized pattern of beliefs about their condition. This is refers to a dynamic process which changes in response to shift in patients' perceptions and ideas about their illness. These individual's emotional response toward illness and their coping behavior such as adherence to treatment will be directly influenced by illness perceptions or cognitive representations.

In another similar study also was stated that a person's illness perception is directly related to several important health outcomes. For example, an individual's level of functioning and ability, utilization of health care, adherence to treatment plans laid out by health care professionals and even overall mortality are influenced by perception of illness (Petrie *et al.*, 2007). However, beliefs about specific medications and about hypertension are predictive of treatment compliance. In order to improve the treatment compliance, information regarding the health beliefs is important. In fact, educational level affects beliefs about medicine (Ross, Walker & MacLeod, 2004).

So, this study is aim to identify the illness perception and treatment belief among hypertensive patients and its association with socio-demographic factors such as age, gender and level of education. This study is also aim to identify the treatment belief and its association with medication adherence among hypertensive patients. Thus, in this

study, the focus is on patients-related factors such as age, gender, level of education, financial status and perception of illness as well as beliefs about treatment.

1.2.1 Theoretical Framework

The theoretical frameworks used for this study is Self-Regulation Model (SRM) developed by Leventhal, Meyer and Nerenz (1980). It is useful in identifying patient's health beliefs (Ross *et al.*, 2004). Besides, SRM is important in order to understand how people think about their illnesses and how this subjective viewpoint may guide individual adherent behaviors and health outcomes (Chen *et al.*, 2011). The SRM is varyingly known as the Illness Perceptions Model, the Illness Representations Model, the Parallel Process Model, Common-Sense Model of self-regulation or simply as Leventhal's model (Hale, Treharne & Kitas, 2007).

The self-regulation model assumes that health-related behavioral patterns represent the illness perception and this model has been increasingly used to identify how several domains of health beliefs are associated with medication adherence. According to this model, patient beliefs about their illness and medicines are important drivers of decisions about whether or not to take medicine.

This model explains that in response to illness and other health threats, people develop parallel cognitive and emotional representations which will leads to problem-based and emotion-focused coping procedure (Moss-Morris, 2002). This SRM describe the five components of illness representation which are causes, consequences, control or cure, identity and timeline. Patients assess and create representations of symptoms and other illness cues across these five specific illness domains: 1) cause, e.g., whether food,

lifestyle or a virus led to symptoms; 2) consequences, e.g., whether the symptoms are life-threatening; 3) control/cure, e.g., whether the illness can be treated; 4) identity, e.g., the illness's name and associated symptoms; and 5) timeline, e.g., whether the illness or symptom is chronic or acute (Breland, 2010).

1.3 Research Objectives

1.3.1 General objective

The aim of this study is to identify the illness perception and treatment belief among hypertensive in-patients in medical ward HUSM.

1.3.2 Specific Objectives

- 1) To identify the patient's perception of illness and treatment belief among hypertensive in-patients in medical ward HUSM.
- 2) To determine the association between illness perception and treatment belief among hypertensive in-patients in medical ward HUSM.
- 3) To determine the association between treatment belief and selected socio-demographic factors among hypertensive in-patients in medical ward HUSM.

1.4 Research Questions

- 1) What is the patient's perception of illness and treatment belief among hypertensive in-patients in medical ward HUSM?
- 2) What is the association between illness perception and treatment belief among hypertensive in-patients in medical ward HUSM?

- 3) Is there any association between treatment belief and selected socio-demographic factors among hypertensive in-patients in medical ward HUSM?

1.5 Research Hypothesis

- 1) Null hypothesis, H_0 : There is no significant association between illness perception and treatment belief among hypertensive patients in medical ward HUSM.

Alternative hypothesis, H_A : There is a significant association between illness perception and treatment belief among hypertensive patients in medical ward HUSM.

- 2) Null hypothesis, H_0 : There is no significant association between treatment belief and selected socio-demographic factors among hypertensive patients in medical ward HUSM.

Alternative hypothesis, H_A : There is a significant association between treatment belief and selected socio-demographic factors among hypertensive patients in medical ward HUSM.

1.6 Definition of Terms (Operational)

1.6.1 Illness Perception

Illness perceptions refer to the beliefs that patients have about their illness. Generally, illness perceptions contain an identity components such as the name of the illness, the range of symptoms that the patient believes are associated with the condition,

beliefs about the cause of the illness and how long the illness will last (Petrie, K. J. & Weinman, J., 2012). Furthermore, the components of illness perception also contain beliefs about the personal consequences of the condition for the patient and their family as well as the extent to which the illness is enable to personal control or to control by treatment (Petrie *et al.*, 2007).

Besides, patients' perceptions of illness are also comprised of beliefs about the range of symptoms that patients associate with their illness label, why they developed the illness, the implications of the illness in their life and how the illness is controlled or cured by what the patient can do themselves or by the medication itself (Petrie *et al.*, 2011). The patients' acceptance of medical advice and information may be also influenced by their beliefs or perception about their health condition (Hsiao, Chang & Chen, 2012).

In this study, the patients' perception of hypertension among the hypertensive patients will be identify based on the patients' view about hypertension which include the symptoms, causes, consequences and treatment of hypertension, for example taking anti-hypertensive medication.

1.6.2 Treatment Belief

Beliefs are refer to the things that are accepted as true especially as a tenet or a body of tenets, in contrast to knowledge which is considered as true. For an individual, beliefs are built on knowledge held by them. On the other hand, the summation of beliefs about that behavior and determines the behavior represents by the attitude towards a particular behavior (Hjelm, 2003).

Clearly, the treatment belief means beliefs about medicines which refer to medicines as a category of treatment. The treatment belief involved general and specific beliefs. The general beliefs are the perceptions about the general harm that medicines cause and perceptions about overuse. Besides, specific beliefs about treatment cover necessity beliefs and concerns about medicines. Perceptions about personal need for medication for both current and future health are referred to the treatment necessity belief. The examples of treatment necessity beliefs are beliefs about the effectiveness of medicines or whether missing medications would have a negative impact on health (Stack, Bundy, Elliott, New, Gibson & Noyce, 2011). Belief in the necessity of medication is strongly related to compliance. In contrast, beliefs about the potential negative effects of a medication referred to concern about medication. It shows that patients with strong concerns are less likely to be compliant with medication (Ross et al., 2004).

For this study, patients' belief about the hypertension treatment will be identified based on their belief of necessity and concern about the anti-hypertensive medicines. So, the high score in necessity shows that patients have strong belief and good compliance to anti-hypertensive medicines while high score in concern shows poor belief and poor compliance.

1.6.3 Hypertension

Hypertension is defined as persistent elevation of systolic blood pressure (BP) of 140 mmHg or greater and diastolic blood pressure (BP) of 90 mmHg or greater (Ismail Merican, 2008). It is an asymptomatic chronic illness with serious economic and clinical

consequences, which contributes to the challenge of persistent medication use (Figueiras et al., 2010).

According to Medilexicon's Medical Dictionary (2009), hypertension is high blood pressure or sustained elevation of systemic arterial blood pressure to a level likely to induce cardiovascular damage or other adverse consequences. (Medilexicon's Medical Dictionary, 2009).

For this study, patients had been diagnosed of having hypertension with systolic BP more than 140 mmHg and diastolic BP more than 90 mmHg and admitted to medical ward will be selected as a sample of study.

1.7 Significance of the Study

The finding from this study will describe about the illness perceptions and treatment belief among the hypertensive patients. So, this study is significant to understand people perceptions toward hypertension and health related behavior such as compliance to antihypertensive medicines. This study also helps to prevent misperception regarding their illness which can affect compliance. Since, the study will be designed in a natural setting it can help to determine the noncompliance with antihypertensive medications among the hypertensive patients. Health professional such as physicians, pharmacists and nurses can discuss this issue with patients to help them better manage their drug treatment.

Apart from that, the finding from this study can shows the associated factors with antihypertensive compliance. Besides, knowledge and awareness of blood pressure control among the hypertensive patients can be improved. Nurses and healthcare provider

also can promote medication adherence in patients with poor control of their blood pressure. This study is important because health-related behavior is related to their perceptions or beliefs about hypertension.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Literature is focusing on hypertension, illness perception and treatment belief. The search of literature was done by using the keywords such as hypertension, illness perception, treatment beliefs and medication compliance. These literatures covering a period of 2002 to 2012 consist of nursing and medical journal in English language. The literatures used are regarding the patients' perception of illness and treatment beliefs among the hypertensive patients.

In this chapter, the literature is reviewing about the identity, risk factors, causes and consequences of hypertension. This chapter also includes the review of literature regarding the illness perception and treatment belief among hypertensive patients. Nowadays, hypertension becomes the most common chronic illness in public.

2.2 Review of Literature

2.2.1 Prevalence of hypertension

Hypertension is a major risk factor of cardiovascular disease which can contribute to the global burden of diseases. Hypertension is rapidly increasing worldwide and it has been reported that 30% of all worldwide deaths are related to hypertension (Wang, Zhao, He, Ma, Yan, Sun, Liu, Gu, Zhao & He, 2009). About a quarter of adults in the world are estimated to have hypertension and 59% of the

hypertensive patients have received treatment at the health care services (Chen, Tsai & Chou, 2011).

Few studies have been conducted regarding the prevalence, awareness and control of hypertension. According to Agyemang *et al.*, 2006, the increasing prevalence of hypertension is well reflected in the increasing stroke and cardiovascular disease mortality. In the increasing of prevalence of hypertension, the awareness, treatment, and control of hypertension are unacceptably low (Agyemang, Bruijnzeels & Owusu-Dabo, 2006).

A similar study conducted in US showed that increased prevalence of treatment-resistant hypertension in older people might be related to age-related differences since hypertension is a major risk factor for cardiovascular events in the elderly. Overall finding shown that from 1999 to 2010, hypertension prevalence remained constantly high affecting 30% of US adult with awareness, management, and control were significantly improved, but remained poor (Guo, He, Zhang & Walton, 2012). So, improving control of hypertension in this population would be extremely important. However, the lifestyle factors also affecting the prevalence of hypertension.

In Kelantan, a study was conducted by Mafauzy, Mokhtar and Wan Mohamad in 2003, was found that the prevalence of hypertension in females was slightly higher (14.7%) than males (12.2%). The prevalence of hypertension was also higher in those above 50 years of age. The prevalence was found to be increased with age (Mafauzy, Mokhtar & Wan Mohamad, 2003).

2.2.2 Factors associated with hypertension

The literature is reviewed about the associated factors that lead to hypertension. There are several studies been conducted to identify the association between lifestyles factors and blood pressure control. Normally, hypertension is caused by the factors such as genes, age, alcohol intake, excessive intake of salt, overweight or high body mass index (BMI), obesity and a sedentary lifestyle or lack of exercise (Sarkar, Mondal & Sen, 2009).

A study conducted by Ham & Yang, 2011 found that there were significant association between younger age, number of comorbidities, heavy alcohol drinking, BMI, physical activity and stress with BP control. This finding is consistent with the previous studies where age to be the largest relative and attributable risk for uncontrolled BP (Ham & Yang, 2011). In addition, obesity is known to be an independent risk factor for the development of hypertension (Artham, 2009). Based on population of the previous studies, it was estimated that at least two-thirds of the prevalence of hypertension can be directly attributed to obesity (Narkiewicz, 2006).

2.2.3 Complications of hypertension

Hypertension is a chronic illness that affecting people well-being and health-related quality of life (HRQL). Several studies have explained the impact of hypertension and its treatment on health-related quality of life. In a recent study, hypertensive individuals were found to have lower health status compared with individuals free from hypertension. In some studies, hypertension had been associated with headache, dizziness and tiredness. Hypertensive patients also have been described as more anxious and more depressed compared to non-hypertensive (Wang *et al.*, 2009).

2.2.4 Illness perception

There are several factors such as lack of association of symptoms to hypertension, the complexity of the therapy prescribed, possible side-effects of the drugs or economical factors may contribute for non-compliance to medication or treatment. These factors may be better conceptualized as patients' illness perceptions. Some studies have investigated the hypertensive patients' perception about their illness and treatment. A number of studies have shown that when patients are diagnosed with an illness they generally develop an organized pattern of beliefs about their condition as well as the treatment (Petrie, K. J. & Weinman, J., 2006).

In recent years, the role of illness perceptions and coping responses of patients have especially been highlighted. Health psychologists have shown that patients create their own explanations or 'beliefs' on their illness to make sense and respond to the problems caused by a chronic illness (Heijmans, M., Boot, C. R. L., Joost, W. J. & Rijken, M., 2008).

2.2.5 Treatment belief

Hypertension is the most common chronic diseases that the required of long-term adherence to therapeutic recommendations are required for favorable outcomes (Chen, Tsai & Chou, 2011). Adherence with medication used by patients in response to a chronic illness can be considered as a coping strategy for the illness. So that, patients may identify their perceptions of illness and how they self-manage the condition or their illness when within this strategy (Banning, 2008). For those who are taking antihypertensive medications, to ensure optimal control of hypertension, good medication adherence is very important (Li, Wallhagen & Froelicher, 2007).

According to Horne *et al.*, 2002, adherence to treatment may be improved by simple interventions to correct misplaced beliefs about the illness and treatment. It is found that lack of motivation to take the treatment often arises from mistaken beliefs about the necessity of the treatment or from concerns about the potential adverse effects. Few studies also found that hypertensive patients used their medication in response to the symptoms attribute to their hypertension and avoid medication because of concerns about long term adverse effects of medications (Horne, R., Clatworthy, J., Polmear, A., & Weinman, J., 2002).

Therefore, adherence in hypertension is important to enhance the lifelong nature and reduced morbidity and the related mortality (Zugelj, Zupancic, Komidar, Kenda, Varda & Gregoric, 2010). Medication compliance is a concern across all populations but especially among minority groups where health care disparities exist and compliance is critically important for blood pressure control (Li *et al.* 2007).

2.2.6 Illness perception, treatment belief and compliance in hypertension

The reviews of literature are regarding the illness perceptions of hypertensive patients and the adherence to medication. Adherence to medication regimens has been found to be associated with beliefs about medicines (Theofilou, 2012). A study of factors associated with treatment compliance in hypertension in Southwest Nigeria conducted by Osamor and Owumi in 2011 found the relationship of treatment-compliance patterns among hypertensive patients and factors associated with good compliance includes the demographic factors, beliefs about hypertension, and the availability of social support (Osamor and Owumi, 2011).

Recent studies have shown that hypertensive patients regulated the type of decisions that they make in adhering to treatment are based on the use of information about symptoms. So, the patients' beliefs about their health condition were influenced by the patients' acceptance of medical advice and information (Figueiras, *et al.*, 2010).

Chen *et al.*, 2009, also found that significant predictors of medication adherence and self-management greatly differ. The variables associated with medication adherence include treatment control, risk factors and psychological attribution, symptoms experienced after a hypertension diagnosis, symptoms for blood pressure prediction, personal control, balance and cultural causal attribution were significantly associated with adherence to self-management. The findings may suggest that patients' views are more influential within the domain of self-management. It shows that illness perception had a significant influence on both adherence to the self-management recommendations and prescribed antihypertensive medications (Chen, S.-L., Tsai, J.-C. & Lee, W.-L., 2009).

Previous studies also shows that patients are more likely to be motivated to adhere to prescribe medications if they believed that treatment may bring beneficial effects to their condition and the perception of an individual's ability to manage the health threat is also play as an important key to adhere to health recommendations (Chen, Tsai & Le, 2008).

2.2.7 Relationship between illness perception and treatment belief with socio-demographic factors.

These literatures reviewed the relationship between the illness perception of hypertension and belief about medicines as well as association with socio-demographic factors. The individual's perception of hypertension plays an important role in changing lifestyle and risky health behaviors. However, there are many barriers toward awareness in rural and minority populations which include lack of formal school education, communication gaps and inaccessibility to routine health education programs. Many studies have reported the prevalence of hypertension and its risk factors, but few have paid attention to awareness about these risk factors and prevalence of knowledge in their study populations (Aung, Lorga, Srikrajang, Promtingkran, Kreuangchai, Tonpanya, Vivarakanon, Jain, Praipaksin & Payaprom, 2012). People are unaware about the increasing prevalence of hypertension worldwide.

The major factors influencing hypertension control among socio-demographic characteristics, health care and health behavior are gender, compliance with antihypertensive medication, regular physical activity and comorbidity. These factors are directly influenced the control of hypertension. Compliance with antihypertensive medications also essential to the control of blood pressure (BP) and this is consistent with the results from previous study (Yiannakopoulou, E. C., Papadopoulos, J. S., Cokkinos, D. V. & Mountokalakis, T. D., 2004).

Apart from that, taking antihypertensive drugs was more critical to BP control compared to socio-demographic characteristics and lifestyle factors of patients with hypertension. Additionally, insufficient hypertension knowledge can be a potential cause

for the high rates of uncontrolled blood pressure and its long-term complications in the urban setting (Sanne, Muntner, Kawasaki, Hyre & DeSalvo, 2008). It seems that patients' education, their knowledge of cardiovascular risk factors, their perception of the benefits and potential risks of treatment and their active participation in treatment decisions have been found to affect their compliance with treatment recommendations (Heymann, Gross, Tabenkin, Porter & Porath, 2011). Therefore, awareness and management of hypertension is an important starting point in preventing the increase of morbidity and mortality from hypertension-related cardiovascular diseases.

Previous studies have shown that patients' belief about diseases and treatments affect health-related behavior such as adherence to treatment. The increase of knowledge about their diseases and treatments through educational interventions are positively influenced the patients' perception or belief about medicines (Magadza, Radloff & Srinivas, 2009). Greater or higher education was associated with better health, most marked for health perceptions toward illness (Franks, Gold & Fiscella, 2003). Increased in level of knowledge about their health condition and treatment also may result in patients taking a more active role in the management of their conditions and more compliance to medication (Magadza *et al.*, 2009).

A previous study conducted by Friedman *et al.*, (2010) shows that older patients were less likely to be compliant to medication. Women who had higher socioeconomic status and those who were free of comorbidity were more likely to comply (Friedman McAlister, Yun, Campbell & Tu, 2010). In addition, about 25% of patients taking antihypertensive drugs in Italy were not adherence to treatment. The factors associated with poor adherence were younger age and female gender of patient, recent start of anti-

hypertension drugs, absence of chronic renal insufficiency, absence of diabetes and absence of concomitant drug treatments (Martino, Veronesi, Esposti, Scarpa, Buda, Didoni, Petracci & Valpiani, 2008). Ross et al., in 2004 also found that health belief and demographic factors such as age are associated with compliance.

A study was conducted by Chacon *et al.*, (2008) found that a quarter of elderly with hypertension in Latin America and Caribbean countries were not aware of their condition. In addition, unawareness differs by sex with a higher proportion of men being unaware of their hypertension where 32% in men and 20% in women. Most aware elderly with hypertension are being treated, although there is a higher proportion of men who remain untreated were 22% in men and 17% in women. About 27% of the elderly with hypertension who were unaware of their condition are under treatment, with no differences by sex (Chacon, E. M., Ulloa, C. S. & Bixby, L. R., 2008).

Agyemang *et al.*, (2006), conducted a study where the findings of this study provide important information on factors associated with hypertension awareness, treatment, and control. It is found that old age was independently associated with higher hypertension awareness and treatment. However, the older age group more than 50 years old did not correspond to better BP control. In fact, the older adults were less likely to have their BP adequately controlled compared with younger adults despite of their awareness and treatment rates are also higher (Agyemang *et al.*, 2006). It is shown that old age was most strongly related to uncontrolled blood pressure (Ham and Yang, 2011).