

**THE QUALITY OF LIFE AMONG DIABETES MELLITUS
TYPE 2 GERIATRIC PATIENTS AT DIABETIC CENTRE
HOSPITAL UNIVERSITI SAINS MALAYSIA (USM)
KUBANG KERIAN, KELANTAN**

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TYPE 2 GERIATRIC PATIENTS AT DIABETIC CENTRE
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KUBANG KERIAN, KELANTAN**

by

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**Dissertation submitted in partial fulfilment of the
requirements for the degree of
Bachelor of Health Sciences (Nursing)**

June 2013

DECLARATION

I certify that this thesis entitled **The Quality of Life among Diabetes Mellitus Type 2 Geriatric Patients at Diabetic Centre Hospital Universiti Sains Malaysia (USM)** 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 references is made in the text.



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CERTIFICATE

This is to certify that the dissertation entitled ‘**The Quality of Life among Diabetes Mellitus Type 2 Geriatric Patients at Diabetic Centre Hospital Universiti Sains Malaysia (USM), Kubang Kerian, Kelantan**’ is the bona fide record of research work done by Norhamizah binti Hashim, Matric Number 105140 during the period of September 2012 to June 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 belong to Universiti Sains Malaysia.

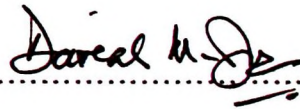
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LIST OF ABBREVIATION

QoL	Quality of Life
DM	Diabetes Mellitus
HbA1c	Glycosylated hemoglobin
NHMS III	3 rd National Health and Morbidity Survey
HBM	Health Belief Model
WHO	World Health Organization

**THE QUALITY OF LIFE AMONG DIABETES MELLITUS TYPE 2 GERIATRIC
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(USM) KUBANG KERIAN, KELANTAN**

ABSTRACT

Diabetes Mellitus is one of the disease that affect elderly mostly over 60 years old. Complications related to diabetes affect elderly such as neuropathy, retinopathy, and many complications related. These may affect their quality of life such as in physical functioning. The metabolic control also provides a guideline whether DM's patients adhere to the treatment, medication and diet in order to improve their Quality of Life. The aim of this study is to determine the level of Quality of life among elderly diabetes mellitus type 2. Apart from that, it is conducted to determine the association of demographical data and metabolic control (HbA1c) with quality of life among elderly at Diabetic Centre Hospital USM. Respondent were taken via purposive sampling method among geriatric patients, aged 60 and above who attended Diabetic Centre Hospital USM (n=70). Data from interview based on questionnaire which consists of socio-demographical data, metabolic control (HbA1c value) and WHOQOL-BREF were collected in 5 weeks and processed by using Statistical Package for Social Science (SPSS) version 20, with the p -value of 0.05 for Chi-Square Test. From the study, 22.9% respondents stated that their quality of life is good while 77.1% are moderate. From the result obtained, there is no significant different between selected demographical data which is sex ($p=0.511$), age ($p=0.436$), race ($p=0.229$), educational level ($p= > 0.950$), financial sources ($p=0.105$), metabolic control ($p=0.105$), with quality of life. As a conclusion, the future research should be conducted by including larger sample size and at other institution to see whether it related to quality of life

among elderly or not. Furthermore, most of the findings revealed that health education must be delivered effectively by health care provider for an elderly with diabetes in order to improve their metabolic control, preventing from complication of diabetes and improving their quality of life.

**KUALITI HIDUP PESAKIT GERIATRIK DIABETES MELLITUS JENIS 2 DI PUSAT
DIABETES HOSPITAL UNIVERSITI SAINS MALAYSIA (USM), KUBANG KERIAN,
KELANTAN**

ABSTRAK

Diabetes mellitus merupakan salah satu penyakit yang sering dihadapi oleh pesakit geriatrik (warga emas) terutamanya yang berumur 60 tahun ke atas. Selain itu, terdapat banyak komplikasi diabetes yang menyerang pesakit geriatrik seperti neuropati, retinopati dan sebagainya yang berkaitan dengan diabetes. Kesan-kesan ini akan memberi kesan terhadap kualiti hidup pesakit geriatrik contohnya seperti ketidakupayaan fizikal. Kawalan metabolik turut memberi garis panduan sama ada pesakit mengikuti rawatan, ubatan, dan diet kerana ketidakpatuhan mengikuti rawatan yang telah ditetapkan menyebabkan pesakit lebih terdedah kepada komplikasi diabetes dan seterusnya mempengaruhi kualiti hidup mereka. Tujuan kajian ini dijalankan adalah untuk menentukan tahap kualiti hidup pesakit geriatrik yang menghidap diabetes mellitus jenis 2. Selain daripada itu, kajian juga dilakukan untuk menentukan kaitan antara data demografi, kawalan metabolik (HbA1c) dengan kualiti hidup dalam kalangan pesakit geriatrik di Pusat Diabetik Hospital USM. Responden terdiri daripada pesakit geriatrik, berumur 60 tahun dan ke atas yang mendapatkan rawatan di Pusat Diabetik Hospital USM (n=70). Data daripada temubual berdasarkan borang soal selidik yang mengandungi sosiodemografi data, kawalan metabolik (nilai HbA1c) dan WHOQOL-BREF dikumpulakn selama 5 minggu dan diproses menggunakan Statistical Package for Social Sciences (SPSS) versi 20 secara deskriptif dan nilai signifikan iaitu $p=0.05$ digunakan dalam ujian Chi-square. Daripada kajian ini, 22.9% responden menyatakan bahawa kualiti hidup mereka adalah baik dan 77.1% responden mempunyai kualiti hidup yang sederhana. Daripada keputusan yang diperolehi, tiada kaitan yang

signifikan antara data demografi iaitu jantina ($p=0.511$), umur ($p=0.436$), etnik ($p=0.229$), taraf pendidikan ($p > 0.950$), sumber kewangan ($p=0.105$), kawalan metabolik ($p=0.105$), dengan kualiti hidup. Kesimpulannya, kajian seterusnya yang ingin dijalankan hendaklah melibatkan sampel saiz yang lebih besar dan melibatkan institusi yang lain untuk melihat sama ada ia berkaitan dengan kualiti hidup pesakit geriatrik atau tidak. Selain daripada itu keputusan kajian lain menyatakan, pendidikan kesihatan seharusnya disampaikan secara efektif oleh ahli kesihatan kepada pesakit geriatrik yang menghidap diabetes supaya kawalan metabolik dapat dikawal dengan mengikuti semua rawatan dan seterusnya dapat mengelakkan komplikasi diabetes di samping memperbaiki taraf kualiti hidup mereka.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

The life expectancy for both men and women has increased continuously from year to year, thus the older population also is growing by unexpected 800000 people in a month (National Institute on Aging, 2001). Elderly were more vulnerable to get disease because study done by Donmes et al. (2005) cited in Luceli et al. (2007) reported that advancing age is associated with an increase in health condition that lead to disability. Elderly people sometimes face the possibility of many years of chronic disability from health disorders such as arthritis, hip fracture, and osteoporosis. It is now widely recognized that assessing of the outcomes from a chronic illness in term of Quality of Life (QoL) is of great importance for comprehensive management of the disease.

One is considered as an older people whenever he or she reaches the age of 60 (United Nation, 2007). However, the age of elderly is different between countries because it own policy. In Malaysia, elderly is defined when age of individuals is 60 years old and above (Department of Information Malaysia, 2005). The numbers of elderly with diabetes mellitus are increasing in greater extent in developed country as well as in developing country. The prevalence of diabetes mellitus increase with age with association of complication such as retinopathy and neuropathy among elderly in Japan (Nakano and Ito, 2007). In France, among diabetes people that taking hypoglycemic medication, half were older than 65 years and quarter were older than 75 years old (Bourdel-Marchasson *et al.*, 2007).

Diabetes is a very common metabolic disorder, especially in the elderly, carrying a high risk of disabling complications due to metabolic disorder such as blindness, amputation, renal failure and cardiovascular damage (Ragonesi, Merati, & Taddei, 2000). Due to the ageing process, many physiological and psychological changes occur among elderly. Their strength decrease, especially if it is not challenged by maintenance or increase in activity or exercise. Muscle mass also decrease and fat mass increase. Health diminished, especially if good health practices have not been followed. For this population also, income may be reducing with loss of work or dependence only on retirement income. This entire thing may affect their QoL.

Elderly diabetic are known to have poorer Health-Related Quality of Life (HRQoL) compare to the other population, particularly on physical health and also, poor metabolic control was associated with reduced cognitive function (Wandell and Tovi, 2000). Although increasing age is a risk factor for the development of diabetes mellitus, little is known about the impact of DM in the elderly population

Nowadays, researchers and scholar have put more emphasis on the quality of life. As the issue of Quality of Life is becoming increasing widely recognized and the diabetic population is growing, the issue relating to the concept of Quality of Life for diabetic patients are drawing more attention from scholars and researchers (Huang and Hung, 2007). It is acknowledge that elderly usually associated with lower quality of life (QoL) because the treatment of diabetes mellitus in the elderly population itself often difficult because of impairment of their physical, psychological and cognitive function, and the lack or shortage of family or social support (Araki and Ito, 2009). In elderly also, age, body habitus and physical activity all play a role in the pathogenesis of hyperglycemia

associated with diabetes mellitus (Morley, 1998). According to Mei-Chuan and Chich-Hsiu (2007), the predictors of patient's quality of life were diabetic self-care behavior, economic status, and frequency of hospitalization.

Geriatric patients with type 2 diabetes mellitus treated on an outpatient basis have a heavy load of co morbidity and an insufficient level of metabolic control even when individually adapted to age and functional state. Health related QoL is greatly impaired and related to their functional, cognitive and effective derangement (Rodriguez-Pascual, Rodriguez-Justo, Garcia-Villar, Narro-Vidal, Torrente-Carballido, & Peredes-Gallan 2011). Thus, the measurement of quality of life is an important component in continuous improvement of chronic disease management in primary care setting.

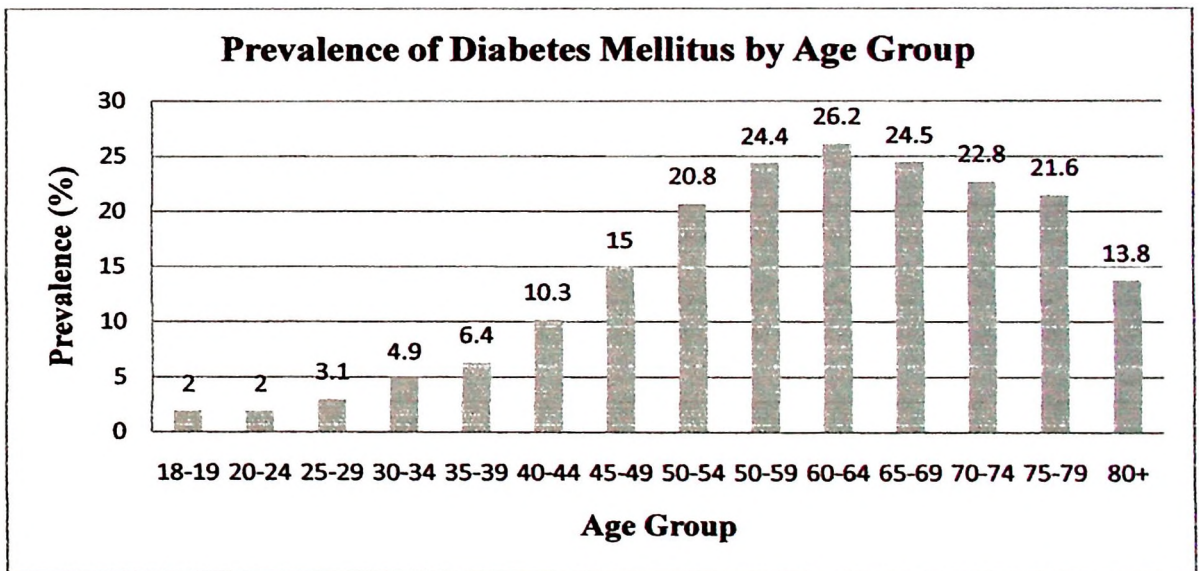


Figure 1.1: Prevalence of Diabetes Mellitus by Age Group in 2006 in Malaysian population
(Resources: NHMS III, 2008)

Figure 1.1 showed the prevalence of diabetes mellitus by age group in Malaysia in 2006. The prevalence of diabetes increase with age more than 65 years old. The sharp

prevalence was at age of 40 years and above. The highest prevalence was in group 60-64 years old. Thus, it is estimated that one in six Malaysians adult above 30 years have diabetes of 1.4 million in numbers (Zanariah, 2008).

1.2 Problem Statement

Being old increased the risk to have chronic disease such diabetes, with those 65 and older comprising 38% of those with diabetes (Mayhorn & Carpenter, 2012). Since diabetes mellitus type 2 is increasing in elderly people and affect their QoL, this study need to be conducted to measure how far this chronic disease influence QoL in elderly population and in what aspect they are increasing. Furthermore, this study is conducted because the trends of elderly getting the treatment at Diabetic Centre HUSM are escalating number. This is important because Diabetes Mellitus type 2 will lead to various complications if it is poorly control.

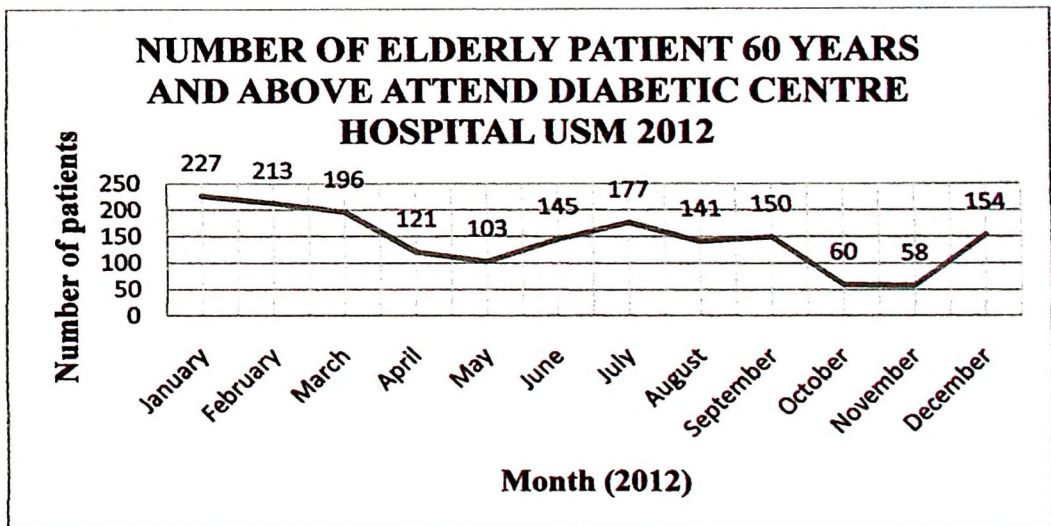


Figure 1.2: Number of geriatric patient 60 years and above attend Diabetic Centre, Hospital USM. [Source: Record Unit, Hospital USM (2012)]

Figure 1.2 shows the number of geriatric patient 60 years and above who received treatment at the Diabetic Centre, Hospital USM from Jan until December 2012. The researcher is interested to study about what their level of QoL. It is important to conduct this study so that researcher can identify which part of QoL of elderly that being affected and plan for intervention and solution. Elderly tend to get various complications due to diabetes mellitus, thus, it is important to measure their QoL to improve their well-being at maximum level and achieve better life. Even though health-related QoL in older people was generally assessed by measuring specific domains of health status, which are activities of daily living or pain, but the association between health-status measures and patients' perception of their QoL however is not clear (Covinsky, et al., 1999).

1.3 Research Objectives

The objectives of the study is to determine the Quality of Life of type 2 Diabetes Mellitus geriatric clients in Diabetic Centre, Hospital USM

1.3.1 Specific Objectives

1. To identify the level of QoL among geriatric client with type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM
2. To determine significant different between selected socio-demographic data (gender, age, educational level, and financial sources) and quality of life among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

3. To determine significant different between metabolic control (HbA1c value) and Quality of Life (QoL) among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

1.4 Research Question

1. What is the level of QoL of elderly patient type 2 diabetes mellitus at Diabetic Centre, Hospital USM
2. Does selected socio-demographic data (gender, age, educational level, and financial sources) related to QoL among elderly patients with type 2 diabetes mellitus?
3. What are the factor influence elderly patients with type 2 diabetes mellitus QoL?
4. Does the Hba1c value (metabolic control) associate with level of QoL among elderly patients with type 2 diabetes mellitus?

1.5 Hypothesis

Ho 1: There is no significant different between selected socio-demographic data (gender, age, educational level, and financial sources) and level of QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

Ha 1: There is a significant different between selected socio-demographic data (gender, age, educational level, and financial sources) and level of QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

Ho 2: There is no significant different between HbA1c level (metabolic control) and level of QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

Ha 2: There is significant different between HbA1c level (metabolic control) and level of QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM

1.6 Definition of term

There are three important terms that extensively used in this study. The definitions are as follows:

Quality of Life

The definition of Quality of Life that provided by World Health Organization (2008) defined QoL as individual's perceptions of their position in life in the context of culture systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to their environment.

Ferrans and Powers (1992) in Tu et al., (2006) defined quality of life as life satisfaction with important events, and a subjective perception of happiness and satisfaction. While, Oleson (1992) in Tu et al. (2006) defined quality of life as level of

socioeconomic domains, psychological or spiritual, family, and level of satisfaction in health and function.

Geriatric patient

The branch of medicine concerned with the diagnosis, treatment and prevention of disease in older people and the problems specific to aging. From the Greek "geron" meaning "old man" + "iatreia" meaning "the treatment of disease." (Medical Dictionary, 2012). Many develop country accepted the chronological age which is 65 years old, but in Asian country, it was different. At this moment, there is no United Nation (UN) standard numerical criteria of age but the UN agreed the cut off for definition of age for the elderly is 60 years old and above (World Health Organization, 2012). In this study, this age will be referring to older population.

Diabetes Mellitus Type 2

Diabetes mellitus is a metabolic disease in which carbohydrate use is reduced and that of lipid and protein enhanced: It is caused by an absolute or relative deficiency of insulin and is characterized, in more severe cases, by chronic hyperglycemia, glycosuria water and electrolyte loss, ketoacidosis, and coma; long term complication include neuropathy, retinopathy, nephropathy, generalized degenerative changes in large and small blood vessel, and increased susceptibility to infection (Dictionary, 2005). There are 4 types of DM, but in this research, it will only involve the people with type 2 diabetes mellitus (DM 2). DM 2 is a condition of fasting hyperglycemia that occurs despite the availability of endogenous insulin (Lemone and Burke, 2004). Diabetes Mellitus occur when pancreas does not produce enough insulin, or body cannot effectively use the insulin it

produces. Increase concentration of glucose in the blood termed as hyperglycemia (WHO, 2012). The normal range of blood glucose is:

<p>4 to 7mmol/l before meals</p> <p><i>Less than 10mmol/l</i> 90 minutes after a meal</p> <p>8mmol/l at bedtime.</p>
--

(Campbell, 2008)

Metabolic control (HbA1c value)

HbA1c or glycosylated hemoglobin is a lab test that shows the average level of blood sugar (glucose) over the previous 3 months. It shows how well in controlling diabetes (Medline, 2012). Hemoglobin is the substance inside the red blood cells that carries oxygen to the cells of the body. Glucose (a type of sugar) molecules in the blood normally become stuck to hemoglobin molecules - this means the hemoglobin has become glycosylated (also referred to as hemoglobin A1c, or HbA1c). As a person's blood sugar becomes higher, more of the person's hemoglobin becomes glycosylated. The glucose remains attached to the hemoglobin for the life of the red blood cell, or about 2 to 3 months. A blood test can measure the amount of glycosylated hemoglobin in the blood. The glycosylated hemoglobin test shows what a person's average blood glucose level was for the 2 to 3 months before the test. This can help determine how well a person's diabetes is being controlled over time. The American Diabetes Association (ADA, 2003) recommended a target glycosylated hemoglobin (HbA1c) level less than 7%.

1.7 Significance of The Study

This study was conducted to increase the knowledge on risk factor affecting QoL among elderly with diabetes mellitus. This study also increases the knowledge of the nurses and health care provider to improve knowledge among elderly regarding the importance of having good quality of life in daily living even though having disease. The data can be major step to better understanding of the older population. It can bring us to higher level of nursing care toward elderly in order to increase their quality of life.

Most studies of life at older ages have found that a person's health is associated strongly with their quality of life (Blane, Netuveli, & Montgomery, 2008) . Providing and improving QoL among elderly was importance because this will promote a healthy and productive ageing and reduce the long term complication regarding DM type 2.

Besides, this study can help gerontological nurse, through the information that will be obtained regarding factor influencing quality of life among geriatric population. The data from this study also may provide policy makers to develop further improvement in intervention related to elderly who have diabetes mellitus in order to make good quality of life in aging population which is crucial nowadays. Understanding the need of elderly is the one way to promote satisfaction in their life especially QoL. Thus, this study will give an idea to the health care provider in identifying what factor that mostly affects QoL among elderly with type 2 DM. Thus, after knowing the factor, appropriate intervention can be done in order to improve QoL among this population in future

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The number of older population at present has increase progressively in Malaysia. According to Associate Professor Dr. Tengku Aizen Hamid, from Sekretariat Alumni Aspirasi UPM (2007), the number of elderly who aged 60 years and above has reached 1.6 billion and this number give elderly population 6 percent from all populations in Malaysia. This number also may increase until 10 percent from all population in our country. This also was supported by a study done by Mafauzy *et al.*, (1999) that show the prevalence of diabetes was highest in the subject over 60 years of age in Kelantan.

Geriatric is the branch of medicine that deals with the diagnosis and treatment of diseases and problems specific to old age (Medical Dictionary, 2012) The elderly part of the population is now concerned with the worldwide diabetes epidemic. In France, it is estimated that, among people with diabetes taking hypoglycemic medications, half are older than 65 years and a quarter are older than 75 years old (Bourdel-Marchasson, Helmer, Fagot-Campagna, Dehail & Joseph 2007). Most studies of life at older ages have found that a person's health is associated strongly with their quality of life (Blane *et al.*, 2008). Based on the study done by Hornick and Aron (2008) focus need to be very careful when working with this elderly population and they consider that overall goal is the best quality of life possible with healthy food intake and prevention of hypoglycemia.

Diabetes in older age is a serious disease associated with the higher mortality rate and a shorter life expectancy, mainly due to increase atherosclerotic complication and also has high prevalence of neuropathy and retinopathy (Wandell and Tovi, 2000). The

outcome from QoL measurement may provide health care sector to pay more attention to this age group and improve their quality of life. Furthermore, Nakano and Ito (2007) state that it is important for us to treat elderly with diabetes mellitus in order to maintain their function and QoL since the increasing of prevalence elderly with diabetes mellitus. By knowing what their level quality of life may improve the outcome of disease and slow its progression.

The similar study was conducted by Wandell and Tovi (2000), for entire Swedish population. Because of increasing prevalence of diabetes mellitus in elderly, the study was conducted to measure the Quality of Life among this population since there are a lot of complications that will lead to decrease QoL among this population. The finding of this study showed that the physical health affects most QoL of an elderly and cognitive function in elderly also contributes to poor metabolic control since they undergo an ageing process.

2.2 Review of literature

2.2.1 The impact of Diabetes Mellitus in elderly on their QoL

Based on the study done by Araki and Ito (2009), diabetes mellitus and geriatric syndromes often are associated and increase its prevalence and incidence: functional disability, depression, fall, urinary incontinence, malnutrition and cognitive impairment. Geriatric syndrome is related to the impairment of multiple systems due to ageing as well as age-related disease. They also found that geriatric syndromes are the major obstacles for treatment and care for diabetic patients and this will negatively affect their level of QoL. Thus, the findings suggest that diabetic patients who show geriatric syndrome should

be treated with a common concentric strategy such as psychological support, social support for adherence, and good glycemic control with avoidance of hypoglycemia (Araki and Ito, 2009)

Based on the study done by Wandell and Tovi 2000, elderly type 2 diabetic patients with long durations of their disease have a poorer QoL especially regarding different aspects of physical functioning. The activities daily life also impaired both by physical and emotional disturbances. Diabetes is very common metabolic disorder, especially in elderly, carrying high risk of disabling complication, including blindness, amputations, renal failure, and cardiovascular damage (Ragonesi *et al.*, 1998). Furthermore, based on the study done by Wandell and Tovi (2000), elderly with elderly type II diabetic with long durations of their disease have a poorer Health-Related Quality of Life (HRQoL) than controls from the general population, especially regarding different aspects of physical functioning. The activities of daily life are impaired both by physical and by emotional disturbances. Atheromatous complications and nonvascular disease, such as musculoskeletal and psychiatric disorders, are predictors of a poor HRQoL. Poor metabolic control is associated with impaired cognitive functioning.

Based on the study done by Ragonesi *et al.*, (1998), they found that only patient receiving long-time active education tended to have better psychological status and suggested that educationally by interventions enhance the well being status and provide some hopes for the future especially in caring an elderly with type 2 diabetes mellitus. Meanwhile, it is important in preventing diabetes and its complications among older adult through health education stressing a balanced diet and increased physical activity (Brown, Balluz, Giles, Beckles, Moriarty, Ford & Mokdad, 2004)

2.2.2 Factor that influenced Quality of Life in Elderly

There are many factors that influenced quality of life among elderly with diabetes. One of them is demographical data. It has been found to be associated with quality of life (Tu et al., 2006). Studies done by Mafauzy (2012) showed that no significant differences in demographic and socioeconomic data. Based on the study done by Funnel (2008), some psychosocial factors (health-related belief, social support, coping style and personality) have powerful effect on QoL either directly or through their capacity to buffer the negative effect of diabetes.

2.2.3 Elderly, Metabolic Control and Association with QoL

Assesing glycemic control is an important aspect in managing diabetes in order to prevent complication. Moreover, by achieveing good glycemic control, it will significantly decrease the micro vascular complication of diabetes and may lead to good QoL. Based on the study done by Mafauzy et al., (2012) diabetic patient with older age can be prevented getting poor glycemic control because the study noted that older patient have better control of their blood sugar since they complied with medications and dietary intake. The study also revealed that the factor that associate with glycemic control were age. By adherence with the treatment, diet and medication, the QoL can be improved since fewer complication occur related to diabetes. By improving the glycemic control it will reduce the progression of retinopathy, coronary artery diasease and mortality, through decrease glycemic control will enhance QoL among elderly (Morley, 1998). Besides, in managing older adult with diabetes, the health care provider must monitor the insulin dose and determining glucose level and this can be achieved through health education. It showed that improve glycemic control may improve elderly QoL (Morley,

1998). Other than that, elderly have risk of getting hypoglycemia because of insulin therapy due to their bodies' slow metabolism and this will affect their QoL.

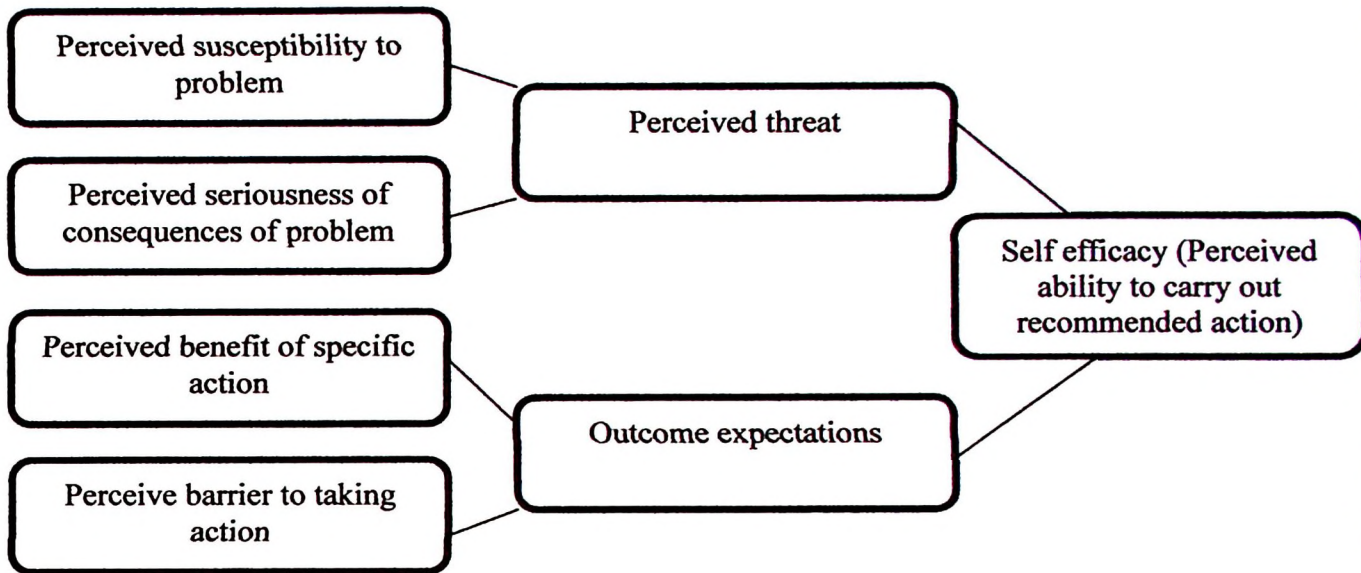


Figure 2.1: Major element of Health Belief Model (HBM)
(Resources: Nutbeam & Harris, 2002)

2.3 Theoretical framework

Health Belief Model

Researcher used Health Belief Model (HBM) by Nutbeam and Harris (2002) in this study to explain regarding topic chosen. The Health Belief Model (HBM) also was one of the first theories of the health behavior, and remains one of the most widely recognized in the field. This model is one of psychological model. The HBM was developed in the 1950s by social psychologists Hochbaum, Kegels, and Rosenstock. It is designed to explain health and predict preventive health behavior (Glanz, Marcus & Rimer, 1997). HBM addresses the individual's perceptions of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat, and factors influencing the decision to act (barriers, cues to action, and self-efficacy). This model

suggested that, an individual react to their health problem based on 4 different type of belief. Based on figure 2.1, individual will take action if they perceived themselves to be susceptible to a condition or problem if they believed that it will have potentially serious consequences: they perceived threat. They believed course of action is available which will reduce their susceptibility. This model argues that people will be ready to act if they:

- believe they are susceptible to the condition (perceived susceptibility)
- believe the condition has serious consequences (perceived severity)
- believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits)
- believe costs of taking action (perceived barriers)
- exposed to factors that prompt action (cue to action)
- confident in their ability to successfully perform an action (self-efficacy)

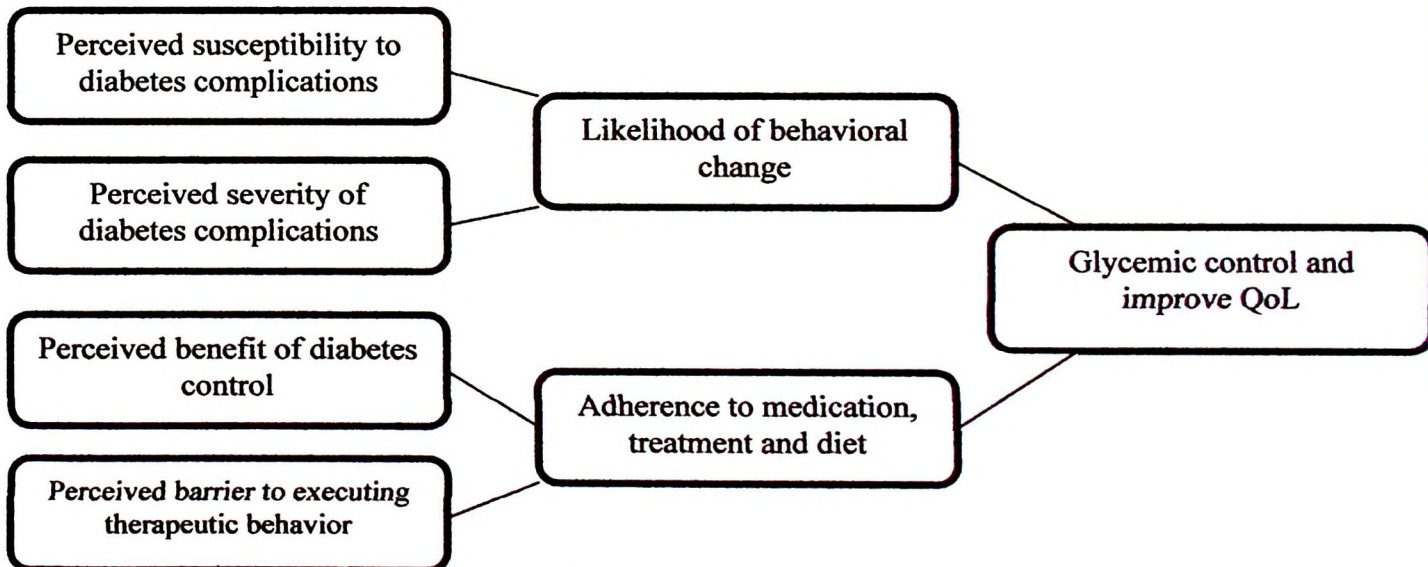


Figure 2.2: Study framework (Modified from figure 2.1)

2.4 Conceptual framework

In this conceptual framework, if the patient perceived susceptibility and severity of diabetes complication, they may likelihood of behavioral change because they know the consequences. Behavioral change may lead to improve glycemic control and improve one's QoL. Patient may perceive benefit of diabetes control if they adhere to medication, treatment and diet. But, there was a barrier to executing therapeutic behavior also in adherence to medication, treatment and diet. This can be change if adequate knowledge was delivered to patient on how importance they must adhere to medication, treatment and diet in order to obtain good glycemic control and improve their QoL because of less complication. According to Becker (1974), health belief is based on idea that individual must have willingness to participate in health interventions and believed that being healthy is a valuable outcome. HBM approaches were to maintain and promote lifestyle changes that encourage health promotion, health maintenance, and assist in decreasing complication of chronic illness.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

This study has been conducted using survey questionnaire to obtain data on QoL of geriatric client who have diabetes mellitus type 2 at Diabetic Centre, Hospital USM. Researcher will be with patient during answering the questionnaire.

3.2 Population and Setting

The populations of this study were among outpatient geriatric patients who attended Diabetic Centre, Hospital USM

3.3 Sampling Plan

3.3.1 Sample

The respondents were outpatient geriatric with type 2 DM who received treatment at Diabetic Centre, Hospital USM.

Inclusion and Exclusion Criteria

The inclusion criteria used is:

1. Patient with Diabetes Mellitus type 2
2. Had been diagnosed with DM more than 6 month
3. Aged 60 years and above
4. Receiving treatment at Diabetic Centre, Hospital USM

5. Able to read and understand Malay language
6. Orientated to time, place and person
7. Agreed to participate in this study (consented)

The exclusion criteria of respondents are:

1. Patient with type 1 diabetes mellitus
2. In-patient DM type 2

3.3.2 Sampling Method

Respondents of this study were selected through purposive sampling method. This was done by involving all geriatric patients with DM type 2 who fulfilled the inclusion criteria.

3.3.3 Sampling Size

Sampling size was calculated by using Raosoft software.

Using Raosoft: Number of sample size + 10% drop out rate

: 106 + 11

N : 117

Margin of error: 5%

Confidence interval: 95%

The estimated sample that must be obtained from this study is n= 117 subjects/respondents (Raosoft, 2004)

3.4 Variables

3.4.1 Variables Measurement

Dependent variable in this study is QoL and the independent variable in this study is the demographic data and HbA1c value. The relationship between selected demographic data (gender, age, educational level, and financial sources), physical health, psychological health, social relationship, environment, general health, metabolic control (HbA1c), and overall QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM are important variables in this study. Independent variables are the selected demographic data (gender, age, educational level, and financial sources), metabolic control (HbA1c), while the dependent variables are QoL among type 2 diabetes mellitus of geriatric client at Diabetic Centre, Hospital USM, Kubang Kerian, Kelantan, Malaysia. All the variables data were collected through self-administered questionnaires that involve selected demographic data, HbA1c value and 5-points Likert Scale questionnaire.

Part A : Consist of sociodemographic data (Gender, age, educational level, financial status)

Gender :Male and Female

Age :60 years and above

Educational :University, College, Secondary school, Primary school, no schooling

Financial :Allowance from welfare society, Family Contribution, Retirement pension, Self- working, and others

Part B : Consist of HbA1c value (over 6 month and above).

A) More than 7%

B) Less than 7%

Part C: Quality of Life Questionnaire. (WHOQOL-BREF) Malay Version (Hasanah, 2003)

Consist of 26 item measure by using 5 point of Likert scale which is strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4) and strongly agree (5).

The scoring for this questionnaire: 3 categories

Good QoL	Moderate QoL	Poor QoL
More than 267 Marks	133-267 Marks	Lower than 133 Marks

(Akbulut & Ersay, 2008)

3.5 Instrumentation

Data for this study was collected through self-administered questionnaire. The questionnaire consisted of 32 questions, which 5 questions of demographic data (gender, age, educational level, and financial sources), one question for level of HbA1c (metabolic control), and 26 questions from WHOQOL-BREF questionnaires (Hasanah *et al.*, 2003)

3.5.1 Instrument

Section A consist of selected socio-demographical data items included in the questionnaires which are gender, age, educational level, and financial sources. Section B included only one question which is Hba1c value 6 month and divided into 2 item which is value more than 7% and value less than 7% and 26 questions from World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. WHOQOL-BREF is the short version of the World Health Organization Quality of Life Assessment.

The self-administered questionnaire which is section C, included 4 Domains which is domain 1 (physical health), domain 2 (psychological health), domain 3 (social health) and domain 4 (environment domain). This domain will give advantages for broad and comprehensive assessment among geriatric. Besides, two item from Overall QoL and General Health facet was included; question 1 asked about an individual's overall perception of QoL and question 2 asked about an individual's overall perception of their health. Higher scores will denote higher QoL.

The WHOQOL-BREF questionnaire was selected to be used in this study because it is found to be a high quality patient-centered generic tool suited to individual assessment in clinics, for research, and audit (Skevington and McCrate, 2011). The WHOQOL-BREF also has been used to assess QoL in people with many disease and conditions such as HIV (Chandra, Deepthivarma, Jairam & Thomas, 2003) , liver transplantation (O'Carrol, Smith, Couston, Cossar, & Hayes 2000) , and for older adults (Chachamovich, Trentini, & Fleck, 2007)

The questionnaire comprised of 24 items that is grouped into 4 domains of QoL which included physical health, psychological health, social relationship, and environment. Two items included which measure overall QoL and general health which is all total of 26 items total. Each item in WHOQOL-BREF uses 5-point likert scale, 'strongly disagree', 'disagree', 'neither agree nor disagree', 'agree' and 'strongly agree'.

When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a symmetric agrees-disagree scale for a series of statements. The questionnaire in this study was divided into 3 parts, which are:

Part A: Demographic data which consist of gender, age, educational level and financial sources

Part B: Respondent HbA1c value. The latest result which is for previous 6 month

Part C: World Health Organization Quality of Life (WHOQOL-BREF) with 26 item

3.5.2 Translation of Instrument

Translation from origin of questionnaire of WHOQOL-BREF to Malay version was done previously by Hasanah, Naing, & Rahaman (2003). This study used Malay version of WHOQOL-BREF in measuring quality of life since Malay version is available. Permission for using this questionnaire had been obtained verbally from Prof. Dr. Hasanah Che Ismail from Psychiatric Department Hospital Universiti Sains Malaysia.

3.5.3 Validity and Reliability

The questionnaire form of WHOQOL-BREF is quality of life scale developed by World Health Organization. WHOQOL-BREF has been used in previous research focusing on assessment of QoL among elderly in many areas (Arslantas, Unsal, Metintas, & Koc, 2008; Hirayama, Gobbi, Bucken Gobbi & Stella, 2008). WHOQOL-BREF Malay version has been used since the existence of the question. This Malay version has been translated by Associate Professor Dr Hasanah Che Ismail and had been undergone reliability test on 40 healthy individuals and 160 patients. From the study, the Cronbach Alpha value total for question 3 to 26 (24 items) was 0.87. Thus, it showed that WHOQOL-BREF domain scores demonstrated good internal consistency and reliability and offer reliable assessment of quality of life (Hasanah et al., 2003). The questionnaire that researcher going to use demonstrated the good discriminant validity and construct validity (Hasanah et al., 2003).

3.6 Ethical Consideration

The ethical approval for this study was obtained from the Human Ethical Research Committee (Human) of Universiti Sains Malaysia. Permission to conduct the study was granted from the Director of Hospital Universiti Sains Malaysia and approval also was obtained from Director of Diabetic Centre, Hospital USM.

Respondent who agreed to participate in this study was asked to complete the consent form as verification after researcher had clearly explained about the objectives of the study so that the respondent clearly understand and able to answer it. Respondent can participate if they want and also can refuse it if they don't want to participate at any time