

**PSYCHOLOGICAL DISTRESS PROBLEMS  
AMONG ISCHEMIC HEART DISEASE (IHD)  
PATIENTS IN MEDICAL WARDS, HOSPITAL  
UNIVERSITI SAINS MALAYSIA**

**by**

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## ABSTRACT

The present study was attempted to study the anxiety and depression on ischemic heart disease (IHD). The purposive sampling method was adopted to select the sample. The sample was consisted of 61 subjects with ischemic heart disease (IHD) for both males and females was selected from medical wards Hospital Universiti Sains Malaysia (Hospital USM). The instrument used Cardiac Anxiety Questionnaire (CAQ). The goal for this study is to determine the level of psychological distress among IHD patients in medical wards Hospital USM. Second goals is to determine the difference between gender and psychological distress among IHD patients and also to determine the association between selected demographic data (age, marital status, and educational level) and psychological distress among IHD patients in medical wards Hospital USM. Data were collected from January to March 2015 and analyzed using SPSS version 20.0 for frequency, percentage, mean, standard deviation and *p*-value. The overall score of psychological distress patients with IHD was at the low level of stress (mean = 35.10). Majority of the respondent have low level of psychological distress (54.10 %) and remaining is high score of psychological distress (45.90%).The study found that there was significant difference between gender and psychological distress among IHD patients. It was also found that there was significant association between selected demographic data (age and level of education) and psychological distress while for marital status there was no significant association with the psychological distress. Thus, nurses should identify the psychological distress in order to improve the management of psychological distress as well as quality of nursing care in order to prevent further complications to the IHD patients.

## ABSTRAK

Kajian ini telah dilakukan bagi membuat kajian tentang tekanan psikologi terhadap pesakit menghidap penyakit jantung iskemik. Seramai 61 orang (perempuan dan lelaki) sampel telah dipilih dari wad medikal Hospital USM dengan menggunakan kaedah persampelan bertujuan. Kajian ini telah menggunakan alat-alat penilaian "Cardiac Anxiety Questionnaire". Tujuan kajian ini juga untuk menentukan perbezaan diantara jantina dan tekanan psikologi. Selain itu juga, bertujuan menentukan perkaitan diantara data sosiodemografik (umur, status perkahwinan dan tahap pelajaran) dan tekanan psikologi dalam kalangan pesakit jantung iskemik. Data telah dikumpul dari Januari hingga Mac 2015 dan dianalisis dengan menggunakan perisian SPSS versi 20.0 untuk kekerapan, peratusan, min, sisihan piawai dan nilai *p*. Skor keseluruhan tekanan psikologi pesakit-pesakit adalah ditahap rendah (min=35.10). kebanyakan sampel berada ditahap tahap tekanan psikologi rendah (54.10 %) dan selebihnya ialah dengan skor yang tinggi (45.90%). Kajian mendapati bahawa ada perbezaan diantara jantina dengan tekanan psikologi. Selain itu terdapat perkaitan diantara perkaitan diantara data sosiodemografik (umur, status perkahwinan dan tahap pelajaran) dan tekanan psikologi dalam kalangan pesakit jantung iskemik. Oleh itu, jururawat perlu mengenalpasti tahap tekanan psikologi pesakit bagi meningkatkan pengurusan psakit jantung iskemik serta kualiti penjagaan pesakit bagi mengelakkan komplikasi selanjutnya kepada pesakit.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

Psychological distress is widely used as an indicator of the mental health of the population in public health, in population surveys and in epidemiological studies and, as an outcome. Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression such as lost interest, sadness, and also hopelessness and anxiety (restlessness; feeling tense). These symptoms may be tied in with somatic symptoms for example insomnia; headaches and lack of energy that are likely to vary across cultures (Drapeau, Marchand, & Beaulieu-prévoist, 2007). Additional criteria have been used in the definition of psychological distress but these criteria do not make consensus. In particular, tenants of the stress-distress model posit that the defining features of psychological distress are the exposure to a stressful event that threatens the physical or mental health, the inability to cope effectively with this stressor and the emotional turmoil that results from this ineffective coping (Sloan et al., 2013).

Ischemic heart diseases (IHD) also known as Coronary Heart Disease (CHD), it one of the principal component of cardiovascular disease (CVD), that is leading cause of death in all regions of the world. Ischemic heart disease (IHD) is caused by insufficient oxygen delivery to meet the metabolic demands of heart muscle. IHD can be caused by a failure to adequately perfuse cardiac myocytes with oxygenated blood (failure of supply) and/or to increase oxygen demand (Thygesen, Alpert, & White, 2007).

The global burden of Ischemic Heart Disease IHD increased by 29 million disability-adjusted life years (DALYs; 29% increase) between 1990 and 2010. About 32.4% of the growth in global IHD DALYs between 1990 and 2010 was due to aging of the world population, 22.1% due to population growth, and total DALYs were attenuated by a 25.3% decrease in per capita Ischemic Heart Disease IHD burden (decreased rate). The number of people living with non-fatal IHD increased more than the number of IHD deaths since 1990, but more than 90% of Ischemic Heart Disease IHD DALYs in 2010 were due to IHD deaths (Moran, Forouzanfar, et al., 2014). The

burden of Ischemic Heart Disease of females and male in wide world are shown in figure 1.1 (a) and figure 1.1 (b).

**Burden of ischemic heart disease  
Males, 2010**



Figure 1.1 (a) : Burden of Ischemic Heart Disease in Males (Source: The global burden of ischemic heart disease in 1990 and 2010: the Global Burden of Disease 2010 study)

**Burden of ischemic heart disease  
Females, 2010**

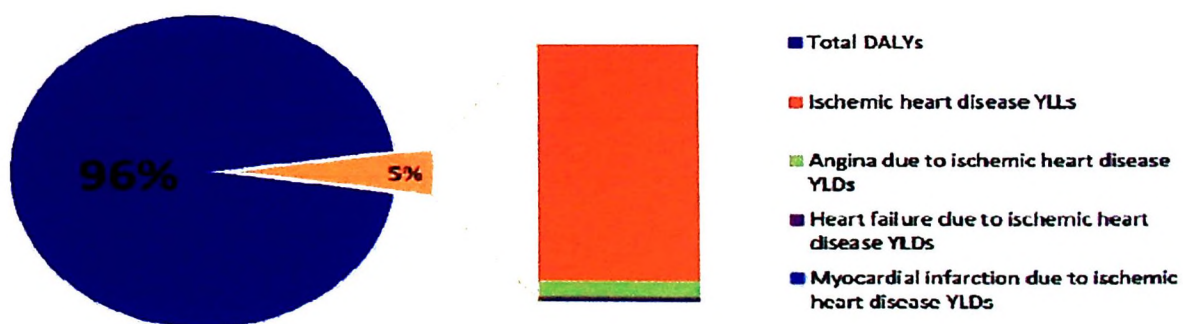


Figure 1.1 (b) : Burden Of Ischemic Heart Disease in Females (Source : The global burden of ischemic heart disease in 1990 and 2010: the Global Burden of Disease 2010 study)

While in Malaysia, there are 22700 population of IHD death in 2008 (Statistics, 2011). In Malaysia, the incidences of IHD are increases from year to year. Since the early 1970s, CVD have been the major cause of mortality in Malaysia with the mortality rate due to IHD still on rise. In clinical trials and intervention studies. Depression and ischemic heart disease (IHD) are strongly related common disorders. Depression itself is an independent cardiac risk factor and is associated with a two- to threefold increase in ischemic heart disease (IHD) mortality. Depression and IHD both have a high association with environmental stress, and depression is characterized by abnormalities of the stress-hormone axis. The prevalence of heart failure continues to increase, mainly as a consequence of ageing populations, many patients having hypertension, ischaemic heart disease, or both, the two main predisposing disorders for heart failure (Korszun & Frenneaux, 2006).

## **1.2 Problem statement**

According to Jeyamalar (1991), the age distribution of deaths due to IHD in Malaysia appears to be similar to that in Western societies, mortality increasing with age. There were, however, 3.2% of 2,713 deaths in patients below the age of 40 years. The male: female sex ratio was 2.2: 1 although this varied among the three ethnic groups; 2.5:1, 1.7:1 and 3.0:1 among Malays, Chinese and Indians respectively. The proportion of Malays, Chinese and Indians constituting the population of Peninsula Malaysia for the year 1987 was 57%, 32% and 10% respectively. The proportion of deaths due to IHD among the Malays, Chinese and Indians however, was 34%, 39% and 26% (Jeyamalar, 1991).

From the previous study, depression and anxiety is not only a risk factor for cardiovascular disease but is also a strong cause of mortality in patients with manifest ischemic heart disease. So, there is need for identifying anxiety and depression in the clinical practice that primary care physicians will consider risk factors for ischemic heart disease when evaluating patients. There is a clear consensus that depression and anxiety are currently under diagnosed in cardiac patients by cardiologists and primary care physicians alike. A possible reason for the low rate of detection is uncertainty among physicians about how to manage these disorders in cardiac patients if the disorders were identified.

There is need for psychological intervention to manage and control the symptoms of anxiety and depression in cardiovascular diseases in each and every cardiology units. The present investigation revealed that depression; anxiety, general stress, quality of life, life events and cardiovascular conditions were closely interrelated (Raj, 2010). The psychological distress problems depend on different religion, culture and ethnicity in the world. Apart from that, the burden will be found when the IHD patients try to cope with the treatment session either surgical treatment or medical treatment that are need of emotional and psychological support to reduce the problems.

The awareness of the need to identify psychosocial problems in Ischemic Heart Disease patients is growing and has affected the development of screening instruments. For example when patient have low emotional support from family member, it can make patient become more burden and increase psychological distress that affect the quality of life (Raj, 2010). The aim are to reduce the problems that related to emotional

and distress and to improve the quality of life. The questions we seek to answer are whether anxiety depression and life events considered as higher risks for cardiac events notwithstanding the existence of other physical and psychosocial variables in these patients.

### **1.3 Research Objectives**

#### **1.3.1 General objectives**

The objectives of this study is to determine the level of psychological distress among Ischemic Heart Disease (IHD) patients in Medical wards at Hospital Universiti Sains Malaysia (Hospital USM).

#### **1.3.2 Specific objectives**

1. To determine the level of psychological distress among IHD patients
2. To determine the difference between gender and the level of psychological distress among IHD patients in Medical wards at Hospital USM.
3. To determine the association of selected demographic data (age, marital status and level of education) with psychological distress among IHD patients in Medical wards at Hospital USM.

### **1.4 Research Question**

1. What is the level of psychological distress among IHD patients in medical wards, Hospital USM?
2. Is there any difference between gender and level of psychological distress among IHD patients in medical wards, Hospital USM?
3. Is there any association between selected demographic data (age, marital status and level of education) with psychological distress among IHD patients in medical wards, Hospital USM?

## 1.5 Research Hypothesis

1. Ho 1 = There is no significant difference between gender and psychological distress among IHD patients.  
HA 1 = There is a significant difference between gender and psychological distress among IHD patients.
2. Ho 2 = There is no significant association between age and psychological distress among IHD patients.  
HA 2 = There is a significant association between age and psychological distress among IHD patients.
3. Ho 3 = There is no significant association between marital status and psychological distress among IHD patients.  
HA 3 = There is a significant association between marital status and psychological distress among IHD patients.
4. Ho 4 = There is no significant association between level of education and psychological distress among IHD patients.  
HA 4 = There is significant association between level of education and psychological distress among IHD patients.

## **1.6 Definition of terms (conceptual/operational)**

### **Psychological distress**

Psychological distress is often applied to the undifferentiated combinations of symptoms ranging from depression and general anxiety symptoms to personality traits, functional disabilities and behavioural problems (Drapeau et al., 2007). Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression such as lost interest, sadness, and also hopelessness and anxiety (restlessness; feeling tense). These symptoms may be tied in with somatic symptoms for example insomnia; headaches and lack of energy that are likely to vary across cultures (Drapeau et al., 2007). For this study, psychological distress will be assessed to the Ischemic Heart Disease (IHD) patients in the medical wards including fears and worries about heart disease, fear of chest pain and other heart-related sensations, heart-focused attention, help and reassurance seeking, and avoidance of activities believed to elicit cardiac symptoms.

### **Ischemic Heart Disease**

Ischaemic heart disease (IHD) is a condition which results from reduced blood supply to the heart muscle. This usually involves impairment of blood flow through the coronary arteries, most commonly caused by atherosclerotic narrowing, but occasionally due to arterial spasm (*Ischaemic heart disease*, 1971). Ischemic Heart Diseases is the main type of heart disease and cause heart attack. The diseases is caused by plaque building up along the inner wall of the arteries of the heart, which narrow the arteries and then reduces blood supply and energy compound to the heart. The symptoms of IHD include the chest pain or referred to as coronary pain (angina), most often the pain is right below the rib cage, experienced as pressure or burning and the pain get worse during physical strain, after a full meal, during very low or high temperature or under stress. The risk factor for IHD can be non-modifiable factor and modifiable factor. Non-modifiable factor includes age, gender and genetic predisposition. Modifiable factor includes hypertension, diabetes, obesity, smoking, little physical activity and excessive alcohol consumption. In this study, Ischaemic (or ischemic) heart disease is a disease characterized by reduced blood supply to the heart. The coronary arteries supply blood to the heart muscle and no alternative blood supply

exists, so a blockage in the coronary arteries reduces the supply of blood to heart muscle. So, for this study the patients which having ischemic heart disease which are stable will be assesed on their psychological stress.

## **1.7 Significance of the study**

The findings gathered will provide an actual and practical understanding nursing practice by focusing on the resulting strategies for better nursing care management for Ischemic Heart Disease patients that have psychological distress. For nursing practice, the findings will help the nurses in understanding the causes psychological distress among IHD patients. It will help the nurses to plan their nursing care for such patients that undergo treatment or admitted in the medical wards.

When the nurses know the problems and the causes of psychological, the nurses will be able to plan the nursing care and will be able to provide that complementary therapies as needed. So, the level of emotional and physical stress will be reduced towards nursing care provided. In addition, Ischemic Heart Disease (IHD) impose many burdens on patients and their families due to the limitation of physical activities in daily life. Health-related psychological distress is an important measure of how disease affects patients' mental and physical health. Several studies have investigated that psychological distress among heart diseases patients and found that patient with heart diseases have high level of distress compared to general population. The study also can be guideline to the nurses in Medical ward to give a better nursing care towards their patients.

Apart from that, patients who had significant levels of depression and or life events were ten times more likely to have recurrence of cardiac events as compared to those without risk for either of these psychological symptoms. Anxiety, depression and stress levels are significantly increased after the onset of ischemic heart disease and could be contributing or predisposing factors for the recurrence of cardiac events for these patients (Michael, Krishnaswamy, Muthusamy, Yusuf, & Mohamed, 2005)

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter, the literature reviews consists of psychological distress, Ischemic Heart Disease and psychological distress among IHD patients. Psychological factors can be as detrimental to the recovery of disease among patients with confirmed cardiac events as to the disease development (Tenolol, Ilent, Tudy, & Nvestigators, 1999). Stress in particular if not managed with proper intervention in the aftermath of myocardial infarction predicts 1-year mortality and rehospitalization. Many cardiovascular patients with high levels of stress continue to show increase in morbidity as stress affects mechanisms related to cardiac events especially clustering of traditional cardiovascular risk factors, endothelial dysfunction, myocardial ischemia, plaque rupture, thrombosis and malignant arrhythmias (Raj, 2010).

#### **2.2 Ischemic Heart Disease**

Ischemic Heart Diseases is a condition of narrowing of the small blood vessel that supply blood and oxygen to the heart. IHD also called coronary heart diseases (CHD) and coronary artery diseases (CAD). IHD is the principal component of cardiovascular disease (CVD) that is the leading cause of death in all regions of the world (WHO, 2001). Ischemia due to increased oxygen demand may be caused by sustained tachycardia, uncontrolled hypertension, or heart failure. Less commonly, IHD may occur due to cardiac revascularization procedures. IHD can lead to acute myocardial necrosis (acute myocardial infarction [AMI]), fatal arrhythmia, or to a number of chronic sequelae, most prominently stable angina pectoris or heart failure (Thygesen & Alpert, 2007). IHD is a world-wide public health problem, with increasing incidence and prevalence. In 2008 there were 7, 249, 000 death from IHD, accounting for 12.7 % of all global death (WHO, 2008). IHD is the leading cause of death worldwide (Mentis, Puska & Norving, 2004). The global of IHD injuries and risk factor (GBD) 2010 study estimate that IHD mortality and disability burden for 21 world region for the year 1990 to 2010 (Andrew & Moran, 2010).

In United State, IHD was recognized as a leading cause of death. IHD is a common type heart diseases that kill more than 385, 000 people annually in United State (Kochanek & Murphy, 2011). IHD alone costs the United State \$108.9 bilion each year (Heidenrech, Trogdon & Khavjou, 2011).

IHD is projected to rank fifth among 10 leading causes of disability-adjusted life years (DALYs) in low income countries by 2030 (Sani, Adamu & Mijinyawa, 2006). IHD is not only a disease of the elderly in wealthy countries, but also past analyses by the GBD (Global Burden of Diseases, Injuries, and Risk Factors) study and other studies indicated that IHD has a major global impact on working-age adults and is a growing problem in low-income and middle-income countries (Leeder & Raymond, 2004). IHD also cause disability worldwide and estimating IHD epidemiology as accurately as possible for all world region (Abraham, Flaxman & Gregory, 2010). The epidemiologic component of IHD burden are IHD death and morbidity from myocardial infarction, stable angina and ischemic heart failure (Moran, Oliver & Mizaie, 2007).

Although the mortality associated with IHD has declined in the recent decade, due to therapeutic improvement, for example thrombolytic agents, early revascularization (ACE inhibitor and beta-blocker) and preventive campaign reducing the incidence of myocardial infarction (MI) that related to IHD. IHD remain the leading causes of burdens in adults in develop countries and the prevalence will continue to increases (Lloyd & Jone, 2010). Other contributing factors to an increased prevalence of IHD are increasing prevalence of risk factors of type 2 diabetes, physical inactivity and obesity (Rezkalla & Klover, 2007). IHD risk factor are well known at the individual level. For the ecological and country level, the effect may not be identical with the effect at individual level, which may produce difficulties in interpretation. Some factor such as diabetes prevalence and fast blood glucose are known to be important at the individual level (Thygesen & Alpert, 2007). Ecological and country level referred to because of unpredictable nature of some risk factor such as country income, disaster and war the most feasible approach to studying their hazardous effect may be through ecological and the series study (Rathman & Greenland, 2008).

IHD is only one of several causes of heart failure in the GBD. Estimation of ischemic heart failure prevalence required a 2 step process. Firstly, estimate the total heart failure envelope, inclusive of heart failure cases of all causal origin and second to

estimating the proportion of heart failure attributable to IHD specific to region, age group, and sex. Data from the systematic review were included in both steps of the analysis (Adrew, John & Masoud, 2012).

### **2.3 Psychological distress among IHD patients**

Psychological distress may manifest in the form of depression (Raj, 2010). Depression is complex and multidimensional. Moreover, those who design instruments hold a particular view about the nature of depression, which, in turn, influences the cognitive, somatic and behavioral domains that are indexed. The confounding effects of physical illness on symptoms, which are usually indicative of depression in other populations (eg, fatigue, poor concentration, sleep disturbance, appetite and weight change), need to be considered when using any screening or diagnostic tools for depression. Anxiety, similar to depression, is a symptom that exists along a continuum, from distress that is common and might arise periodically, through to disabling anxiety indicative of a specific psychiatric syndrome (Kelly & Health, 2006).

Furthermore, anxiety symptoms may mimic physical illness (eg, cardiovascular symptoms or breathlessness of a panic attack) or may contribute to an accentuation of existing physical symptoms, such as the exacerbation of dyspnoea in a patient with lung disease. Anxiety may occur as a symptom of physical illness or its treatments, or result from other primary causes (eg, substance withdrawal). Primary anxiety disorders are characterised by their impact on functioning, the persistence of the symptoms over time, as well as the presence of some core associated features (eg, in panic disorders, the frequency of panic attacks). Anxiety and depression are closely interrelated and indicate different manifestations of psychological distress and may have different effects on cardiac disease (Kelly & Health, 2006).

However, many studies have also reported that attributable to the fact that older subjects are lonelier with diminished health and strength. This results in reduced physical ability to continue their daily activities, usual role and social functioning. Disturbance of these functions results in psychological feelings of low self worth, helplessness, anger and lack of ambition. For the younger patients with heart failure, the finding may be explained by the fact that coping with the physical and emotional limitations caused by heart failure is more difficult for them to accept. There may also be more reporting of symptoms by younger patients as they may perceive that their

heart failure interferes with their functional capabilities and expectations (Ansa, Abasiubong, Agbulu, & Edet, 2009).

### **2.3.1 Psychological distress among IHD and related factors**

In recent years many psychosocial factors have been suggested as potential risk factors for Ischemic In recent Heart Disease and strong evidence has been put forward for several personality factors such as type A behavior pattern, hostility, and depression or social factors such as low social economics status and lack of social support. (Moore et al., 1999). Factors associated with distress include clinical status such as disease severity, presence of pain and fatigue; low functional status (i.e. ability to carry out daily activities); and demographic factors such as younger age, lower income and lower educational level (Munir et al., 2007). Psychological distress has also been associated with patients' perception of their own health status and functioning (Moore et al., 1999), poor self-management of illness (e.g. inconsistent medication use, poor monitoring of symptoms and adherence to diet), poor coping mechanisms and social factors such as low social support.

Anger and hostility have also been associated with adverse lifestyle behaviors, such as excess alcohol consumption and smoking (Janicki-Deverts, Cohen, Matthews, Gross, & Jacobs, 2009). According to Janicki-Deverts, Cohen, Matthews, Gross, and Jacobs (2009) higher hostility scores were associated with higher values for BMI, alcohol intake, total energy intake, and proportion of current smoking. Furthermore, in the same study, hostility scores at baseline were inversely associated with serum levels of carotenoids, including  $\alpha$ -carotene,  $\beta$ -carotene,  $\beta$ -cryptoxanthin, and zeaxanthin/lutein, at years from baseline. Lower plasma levels of carotenoids ( $\alpha$ -carotene,  $\beta$ -carotene, and lycopene) are positively related to ischemic stroke risk, as shown in the Physicians' Health Study (Voutilainen, Nurmi, Mursu, & Rissanen, 2006). Other putative mechanisms linking anger and hostility to the development of CVD include the hypothalamo-pituitary-adrenal (HPA) axis, platelet aggregation, blood pressure reactivity, metabolic syndrome, progression of carotid artery wall atherosclerosis, and neuroimmune modulation of inflammatory processes (Ohira, 2010).

Cardiovascular disease (CVD) is the main cause of death in western countries. Nutrition has a significant role in the prevention of many chronic diseases like heart diseases. The major risk and protective factors in the diet are well recognised. It is well known that a greater intake of fruits and vegetables can help prevent heart diseases and

also can prevent from stress and mortality. It is because fruits, berries and vegetables are chemically complex foods which contributes the most to the cardioprotective effects. Potential beneficial substances included antioxidants vitamins, folate, fibers and potassium. Antioxidant compound found in fruits such as lycopene, beta-carotene, beta-cryptoxanthin, lutein and zeaxanthin (Voutilainen et al., 2006).

There are several potential pathways for the effect of psychological distress on CHD. First, psychological distress may be indirectly associated with CHD through associations with the adoption of unhealthy behaviours such as smoking (Ruuskanen & Ruoppila, 1995), eating fatty foods or drinking alcohol excessively, or lack of exercise which in themselves increase the risk of CHD. Second, social isolation may be a behavioural consequence of psychological distress, and an intervening factor between psychological distress and CHD. As cited in Stansfeld, Fuhrer, Shipley, & Marmot (2002), psychological distress may be an outcome of exposure to situations of low perceived control both at work and home, associated with lower socioeconomic status.

Thus, if low control at work predisposes to Ischemic Heart Disease, psychological distress may either be an intervening factor on the pathway to Ischemic Heart Disease or an index of low control or low socioeconomic position related directly to Ischemic Heart Disease risk. Next, psychological distress may have a direct effect on Ischemic Heart Disease independent of these other behavioural and psychosocial factors, mediated either by neurohumoral activation related to catecholamine secretion or hypothalamic pituitary-adrenal axis activation and secondary metabolic disturbance. These negative mood states and environmental conditions might all act through a single pathway or these factors might have independent effects on Ischemic Heart Disease risk (Stansfeld et al., 2002)

Another possibility might be that psychological distress is an indicator of low socioeconomic position and that the association between psychological distress and Ischemic Heart Disease could be explained through an association with socioeconomic position. In previous study show that there is a strong association with socioeconomic position measured by employment grade and although the confounding might relate to another indicator of social position, employment grade is a precise indicator of income and status in the Civil Service. Additionally, adjustment for employment grade had little effect on the magnitude of the association between Ischemic Heart Disease and psychological distress. This association however could not be explained by

employment grade, negative affectivity, or classic coronary risk factors and also job demands and social support at work (Stansfeld et al., 2002).

While it is seldom made explicit, most investigators appear to assume that coronary prone behaviour acts to increase the likelihood of the patient developing Coronary Artery Disease (CAD) through the development of atheroma. Coronary prone behaviour or Type A personality behavior is therefore seen as operating over a long time to increase the patient's risk of getting stress. Clearly the studies of coronary occlusion, in as far as they are positive, support this view but it should be recognized that coronary prone behaviour could equally well relate to the acute processes that lead to a myocardial infarction such as plaque rupture and thrombus formation or to the occurrence of fatal arrhythmias. There is little positive evidence on this but the sudden explosive nature of some of the components of Type A behaviour could plausibly relate to these acute processes where the more long-term chronic components, such as potential for hostility, may relate to the presumably slower processes that lead to the build up of atheroma (Revisited, 1993).

The Type A personality types behavior makes them more prone to stress-related illnesses such as Ischemic Heart Disease, raised blood pressure and many more. Such people are more likely to have their "flight or fight" response set off by things in their environment. Type A individuals tend to be easily aroused to anger or hostility, which they may or may not express overtly. Such individuals tend to see the worse in others, displaying anger, envy and a lack of compassion. As a result they are more likely to have the stress hormones present, which over a long period of time leads to a range of stress-related illnesses (Miller, 1999).

### **2.3.2 Relationship between Selected Demographic Data and Psychological Distress**

Particularly education is one socio-economic indicator that has been extensively linked to Cardiovascular Diseases (CVD) (Madsen et al., 2014). Socioeconomic level is known to influence health status but there is scant evidence on socioeconomic inequalities in cardiovascular disease in Portugal. The increasing societal burden of these disease has social, economics and cultural impacts (Ribeiro, Furtado, & Pereira, 2013). For example, higher income may lead to better access to health care and higher living standards. A higher education generally also involves better jobs with less strain

and occupational hazards. Furthermore, education provides people with better access to information and improved critical thinking, which may influence their health behaviors and responsiveness to health messages. It has also been suggested that being lower in the social hierarchy may cause psychological stress that affects health (Madsen et al., 2014).

There has been considerable interest for many years in potential gender differences in the experience and appraisal of stress, both in the work environment and in interpersonal relationships. According to the study have found that women experienced more stress than men along a number of dimensions. The small but significant gender differences were consistent across a number of types of stressors and age groups (Allen, Bocek, & Burch, 2011). Thus, it seemed quite possible that women would report more background stress than men. It has been speculated that sex role socialization may result in men being more competitive than women, and therefore that men might show greater cardiovascular reactivity to competitive laboratory stressors that involve challenges to their intelligence or physical abilities than women. According to Allen, Bocek and Burch (2011), given the potential gender differences in stress appraisal and cardiovascular response to challenges, we wanted to assess whether the relationships between background stress and acute stress responses were different for men and women.

One of the strongest recurrent findings about demographic data on marital status and health has been the presence of gender differences in the relationship between marital status and health outcomes. Being married is associated with greater protection for men compared to women, therefore gender stratified analysis have become commonplace in much of this work (Kaplan & Kronick, 2006).

Various explanations have been proposed for observed gender differences in the marriage–health relationship, namely gender differences in the social control of health behaviour, with women being more likely to control others health behaviour and the qualitative differences between men and women’s support networks, with men more likely to rely on wife or partner as the main source of support, whereas women may have several close confidants. To date, the extent of the differences between the intermediate processes between marital status and cardiovascular disease mortality in men and women has not been well characterised (Molloy, Stamatakis, Randall, & Hamer, 2009). Besides that, all unmarried categories for men and women were significantly more likely to smoke than married individuals. Separated or divorced and

widowed men were more likely to engage in hazardous drinking. All unmarried categories for men and women were significantly more likely to experience psychological distress (Molloy et al., 2009).

The majority of IHD burden in 2010 affected middle-income regions, where younger adults were more likely to develop Ischemic Heart Disease in regions such as South Asia and North Africa/Middle East. However, Ischemic Heart Disease burden varied substantially by country within regions, especially among middle-income countries (Moran, Tzong, et al., 2014).

The GBD (Global Burden of Diseases, Injuries, and Risk Factors) 2010 study found that the global burden of disease due to chronic, noncommunicable diseases and their risk factors increased substantially since 1990, in large part because of a growing and aging world population (Mensah, Moran, Roth, & Narula, 2014). IHD burden also increased in absolute magnitude, despite overall decrease in age-standardized rates of fatal IHD, angina, and nonfatal AMI, and only a small increase in age-standardized ischemic heart failure prevalence (Mensah et al., 2014)

## **2.4 Measurement of Psychological Distress**

Each of the 18 items is rated on a 5-point Likert scale as to how frequently the behavior typically occurs with response anchors ranging from 0 (never) to 4 (always). A total score is computed as the mean of the relative frequency ratings for each of the 18 items (i.e., summing all responses to individual items and dividing the sum by 18, the number of total test items). Subscale scores are computed similarly as the mean of the relative frequency ratings for each of the items in each subscale. Using means ensures that the total test score and scores from subscales with different numbers of items can be more directly and easily compared because the range of the total and all subscale scores is the same (0±4). Items were aimed at addressing the core features of Heart- Focused Anxiety (HFA), including fears and worries about heart disease, fear of chest pain and other heart-related sensations, heart-focused attention, help and reassurance seeking, and avoidance of activities believed to elicit cardiac symptoms (Eifert et al., 2000).

On a five-point Likert-type scale, anchored from 0 (never) to 4 (always), Ss indicated for each item the answer that best applied to them (e.g., whether they avoid exercise or other physical work never, rarely, sometimes, often, or always). Scoring consisted of totaling the values such that higher scores indicate greater HFA. Corrected item-total correlations were assessed for all 18 items of the CAQ, with correlations for

all items being greater than 0.30. As indicated, there were no more items that would have increased the scale reliability if they were deleted. Cronbach's alpha for the overall scale was high ( $\alpha=0.83$ ), as were alpha coefficients for each of the subscales (fear,  $r = 0.83$ ; avoidance,  $r=0.82$ ; and attention,  $r=0.69$ ).

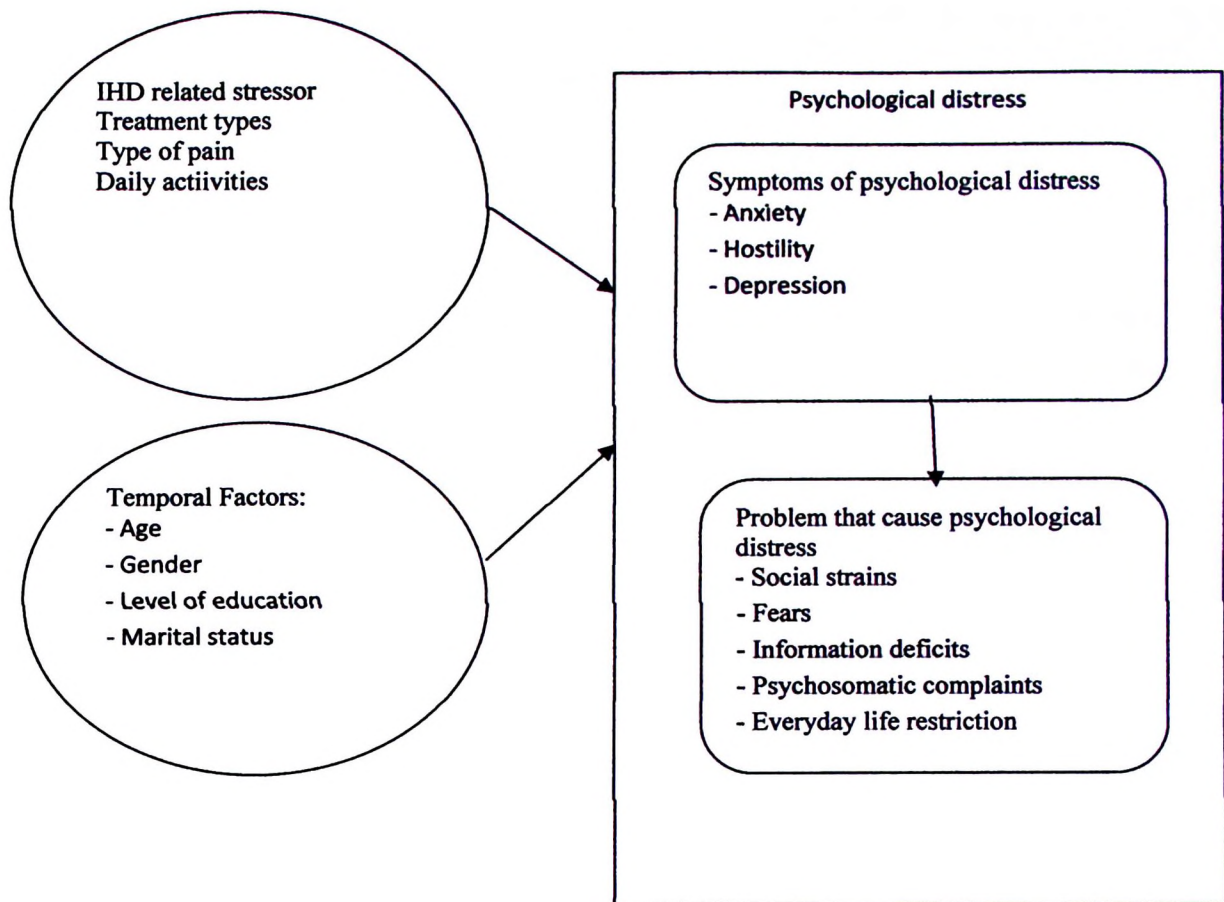
**Shared variance between subscales and relation with CAQ total score** To explore the shared variance between the CAQ subscales, we computed zero-order correlations between each of the three factors. Factor scores were computed by summing the items loading on each factor. The fear subscale correlated significantly with both the avoidance subscale ( $r(187)=0.37$ ,  $p<0.01$ , shared variance=13.7%) and attention subscale ( $r(187)=0.34$ ,  $p < 0.01$ , shared variance=11.6%). In a related way, the avoidance subscale correlated significantly with the attention subscale ( $r(187)=0.20$ ,  $p < 0.01$ , shared variance=4%). Thus, as expected, each subscale was moderately correlated with the other subscales.

To assess the relation between the subscales and the CAQ total score, we then computed correlations between the overall scale score and each of the three factors. Results showed that the correlation between the CAQ total score and each subscale were significantly related: total score/fear subscale,  $r = 0.85$ ; total score/avoidance subscale,  $r = 0.66$ ; total score/attention subscale,  $r=0.63$ ; (all  $ps<0.01$ ). Thus, each individual subscale showed a significant relation with the overall scale (Eifert et al., 2000).

## **2.5 Theoretical / Conceptual Framework**

Figure 2.1 shows extended stress-coping model by Maes, Leventhal, Dennis and De Ridder (1996). Based on this model, other life events, disease characteristics, disease-related events, and demographic characteristics are linked to the appraisal of demands and goals. Furthermore, all factors are directly or indirectly related to coping behaviour, which itself is also moderated by external and internal resources. Finally, all these factors together contribute to psychological, social and physical consequences through coping.





**Figure 2.2** Conceptual Framework for psychological distress among IHD patients in Medical wards at Hospital USM adapted from Deimling *et al.* (2002).

Based on this conceptual model, there is direct linkage between stressors and distress. The symptoms of psychological distress are related to the problems that causes psychological distress. This model also includes the temporal factors such as age, gender, marital status and level of education among IHD patients. These factors influence the psychological distress problems among IHD patients that admitted in the medical ward. From this conceptual model, it would be easy to determine the level of psychological distress problems among Ischemic Heart Disease patients which admitted in medical wards, Hospital Universiti Sains Malaysia (HUSM).

## **CHAPTER 3**

### **METHODOLOGY AND METHODS**

#### **3.1 Research Design**

This was a cross-sectional and quantitative study. The objective of choosing this design was to explore information on the level of psychological distress among patients who are having IHD in medical ward, Hospital Universiti Sains Malaysia. The specific objectives were to determine the level of psychological distress among IHD patients in Medical wards at Hospital Universiti Sains Malaysia (Hospital USM) and also to determine the difference between gender and psychological distress among IHD patients, Hospital USM. Other than that was to determine the association of selected demographic data (age, marital status and level of education) with psychological distress among IHD patients in Medical wards at Hospital Universiti Sains Malaysia (Hospital USM).

#### **3.2 Population and setting**

The study was conducted among Ischemic Heart Disease (IHD) patients in medical Ward, Hospital Universiti Sains Malaysia (Hospital USM), Kubang Kerian, Kelantan.

#### **3.3 Sampling Plan**

##### **3.3.1 Sample**

###### **Inclusion criteria**

1. All IHD patients who admitted in medical ward Hospital USM.
2. IHD patients who was understands, able to speak and write Bahasa Malaysia.
3. IHD patients who were in stable condition and not in severe pain (with the pain score below than 3 by using score 0-10).
4. Aged 18 years old and above.

###### **Exclusion criteria**

1. Had difficulty in understanding the questionnaire or communicate in Malay.

2. Not willing to participate in this study.

### **3.3.2 Sampling Method**

This study had used non probability method via convenience sampling method that uses participants who were most conveniently available.

### **3.3.3 Sample size**

The population size for IHD patients admitted in medical wards Hospital USM for 2014 from May 2014 until June 2014 was 98 were found by researcher. The research used Raosoft sample size calculation software to calculate the sample size and to ensure the accuracy by avoiding sampling error during representatives and parameters of the sample. To determine the sample size, an analysis was conducted by using Raosoft with a confidence level 95 % and a margin of error that can be tolerate amount 0.05, thus the recommended sample size for IHD patients in medical wards were 79. Then, the drop out for this study, 10% of calculated sample size had recorded. Therefore the total patients involved for this study were:

= 79 + drop out of 10%

= 79 + 7.9

≅ 87 patients

## **3.4 Variables**

### **3.4.1 Variables Measurement**

The independent variables were selected based on the demographic data. The demographic data included age, gender, level of education and marital status had been measured according self-report. For the dependent variable the items of Cardiac Anxiety Questionnaires (CAQ), each of the 18 items was rated on a 5-point Likert scale as to how frequently the behavior typically occurs with response anchors ranging from 0 (never) to 4 (always). A total score had been computed as the mean of the relative frequency ratings for each of the 18 items (i.e., summing all responses to individual items and divided the sum by 18, the number of total test items). Subscale scores are computed similarly as the mean of the relative frequency ratings for each of the items in each subscale. Using means ensures that the total test score and scores from subscales

with different numbers of items can be more directly and easily compared because the range of the total and all subscale scores is the same (0±4). Higher scores indicate greater Heart Focused Anxiety (HFA) (Eifert et al., 2000). The five-point Likert-type scale, anchored from 0 (never) to 4 (always), Ss indicated for each item the answer that best applied to them (e.g., whether they avoid exercise or other physical work never, rarely, sometimes, often, or always ). Scoring consisted of totaling the values such that higher scores indicated greater Heart Focused Anxiety (HFA).

### **3.5 Instrumentation**

#### **3.5.1 Instrument**

A self-administered questionnaire was used in this study. The questionnaire were categorized into two sections as follows:

**Section 1:** The demographic data which comprised of five questions that include age, gender, marital status and education level. The age had been filled by patients and depend on the year of birth. For the gender, the patients had chosen either men or female. For the marital status, the patients chose either married or unmarried. Then, for the education level either primary, secondary, university, collage or others had chosen by the patients.

**Section 2:** Cardiac Anxiety Questionnaires (CAQ) (Eifert et al., 2000). contain 18 items. The 18 items is divided into three subscales as follows:

#### **Subscale One: Fear**

10. If tests come out normal, I still worry about my heart
11. I feel safe being around a hospital, physician or other medical facility
13. I worry that doctors do not believe my chest pain/ discomfort is real When I have chest discomfort, or when my heart is beating fast
14. I worry that I may have a heart attack
15. I have difficulty concentrating on anything else
16. I get frightened
17. I like to be checked out by a doctor
- 18..I tell my family or friends

#### **Subscale Two: Avoidance**

2. I avoid physical exertion