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**Thesis Approval**

**Anxiety, Depression among Coronary Heart Disease Patients at Al-Shifa Hospital – Gaza strip: prevalence and associated factors.**

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# Chapter 1

## Introduction

### 1.1 Research background

Psychological disorders are common by presenting with coronary heart disease. It has estimated that 10-20% of the patients with cardiovascular diseases primarily have a psychiatric symptom; individuals with anxiety state, depressions disorder comprise the largest segment of these patients (Alpert and Ewy, 2002).

For years, patients with cardiac disease have been thought to exhibit characteristics of emotional features. In the 20<sup>th</sup> century found that there are several psychosocial risk factors contribute to the development of cardiovascular disease and influence the course of those who have it (Januzzi et al, 2000).

Anxiety and depressive disorders are common in general population and are particularly prevalent in patients with cardiovascular disease; there is a plausible biological basis to the relation between psychiatric morbidity and cardiovascular disease (Davies et al, 2004).

WHO, 2004 an estimated that every year, 17 million people die of cardiovascular disorders, particularly heart attacks and strokes. A substantial number of these deaths can be attributed to tobacco smoking, which increases the risk of dying from coronary heart disease and cerebrovascular disease 2–3 fold. Physical inactivity and unhealthy

diet are other main risk factors which increase individual risks to cardiovascular diseases (WHO, 2004).

Although the relationship between psychological and cardiac functions still a matter of ongoing investigations, many of the gaps in scientific knowledge are beginning to be filled. So every affect of the mind that is attended with pain or pleasure, hope or fear is the cause of an agitation, which influence extends to the heart. Cardiovascular symptoms and psychological factor (anxiety) have always been closely related. In fact, this relationship has had a long interesting history under the different names of "irritable heart", 'effort syndrome' and 'microcirculatory asthenia' (Goyal et al, 2001).

Cardiovascular diseases are increasing progressively in Palestine which is almost the same to the in neighboring countries; coronary heart disease is the main causes for death from total cardiovascular disease which presents 81.5%. The mortality rate of heart diseases are less than 50 persons per 100.000 from 1999-2002 but in 2004 increased to 55.8 per 100.000, 2087 person (1188 male, 899 female). The major mortality from heart disease is coronary artery disease 35per 100.000, 1310 persons (809 male, 501 female) (MOH, 2004).

WHO (2004) stated that mental health is as important as physical health to the overall well-being of individuals, societies and countries. Yet only small minorities of the 450 million people suffering from a mental or behavioral disorder are receiving treatment. Advances in neuroscience and behavioral medicine have shown that, like many physical illnesses, mental and behavioral disorders are the result of a complex interaction between biological, psychological and social factors. Mental and behavioral disorders have a basis in the brain; affected people of all ages in all countries. Mental and

behavioral disorders estimated to account for 12% of the global burden of disease, yet the mental health budgets of the majority of countries constitute less than 1% of their total health expenditures. The relationship between disease burden and disease spending is clearly disproportionate. More than 40% of countries have no mental health policy and over 30% have no mental health programs. Over 90% of countries have no mental health policy that includes children and adolescents. Moreover, health plans frequently do not cover mental and behavioral disorders at the same level as other illnesses, creating significant economic difficulties for patients and their families and so the suffering continues, and the difficulties grow (WHO, 2004).

The importance of mental health has been recognized by WHO since its origin, and is reflected by the definition of health in the WHO Constitution as "not merely the absence of disease or infirmity", but rather, "a state of complete physical, mental and social well-being". In recent years this definition has been given sharper focus by many huge advances in the biological and behavioral science (WHO, 2004).

Relationship is clear and convincing evidence that psychosocial factors contribute significantly to the pathogenesis and expression of coronary artery disease. Although the importance of psychosocial factors such as anxiety, depression and other factors are development and expression of coronary artery disease has been debated, an extensive establishes that psychosocial factors contribute significantly to the pathogenesis of CAD. Furthermore, by use of new technologies and animal models, elucidation of the basic path physiology underlying the relationship between psychosocial factors and CAD is expanding rapidly (Rozanski et al, 1999).

The increased morbidity and mortality described in depressed patients with chronic medical disorders may be partly attributed to poor adherence to drug therapy and to other follow-up protocols. Although the mechanism underlying the relationship between depression and increased morbidity and mortality is not fully understood, non-adherence to the prescribed medical therapy appears to play a role (El-Gatit et al, 2003).

Depression is currently the fourth leading cause of disability worldwide, and its incidence is increasing rapidly. In Western countries, up to one third of the population have had an episode of depression at some point in their lives and 15% to 20% can be diagnosed with chronic depression. Depression will be the second leading cause of death and/or morbidity by the year 2020. Cardiovascular disease which is currently the leading cause of death and morbidity in the industrialized countries and will become the number 1 single causes of mortality by 2020 (Lespérance et al, 2002).

There will be many patients with both diseases, so both conditions are common. However, there appears to be an interaction between the two diseases that augments their respective importance when they are combined (Lespérance et al, 2002).

A clear understanding of the interactions between these disease states will have important implications for the health and well-being of patients. The emphasis on ischemic cardiovascular disease events does not mean that there are not equally important effects in patients with congestive heart failure and after coronary bypass surgery (Lespérance et al, 2002).

Recognizing and understanding the needs of the patient who is afflicted with both ischemic cardiovascular disease and depression can be difficult. As it is usually the cardiovascular complaint that brings the patient to the physician's office, the goal is to

recognize the cardiovascular patient with depression and then to treat both problems. There is a growing body of data to suggest that the presence of medically diagnosed depression may actually lead to the development of coronary artery disease (CAD). This viewpoint should be considered controversial, however, since patients with depression often have more risk factors for CAD compared with those who are not depressed and may be less attentive to modifying those risk factors. In other words, it may be that depression does not cause CAD; depression causes the behaviors that lead to CAD. (Lespérance et al 2002).

Depression is highly prevalent among people with cardiovascular disease (CVD). It has been estimated that anywhere between 20% to 50% of the CVD population suffers from depression. Not only is depression coincident with CVD, but it also appears that depression can contribute to the worsening of the disease. Self-reported negative and depression are associated with the development and progression of coronary artery disease and among patients with CVD, depression predicts future cardiac events and hastens mortality. In addition to being an independent risk factor in the pathophysiologic progression of CVD, depression also adversely affects adherence to the sort of lifestyle changes and medication regimen employed in the treatment of CVD (Young, 2001).

Depression has also been implicated as a risk factor for CAD incidence, morbidity, and mortality. Major depressive disorder can occurring in patients with CAD may be predictive of major cardiac events occurring in a 12-month period following cardiac catheterization, independent of the severity of CAD (Grenier et al 1997).

The prevalence of depression in chronic disease was in myocardial infarction (MI) 25%, and the prevalence of major depression among cardiovascular illness patients was 15-20% , in unstable angina 14-36% , in congestive heart failure 16-20% in and 15-23% in Coronary artery disease (Sarhan, 2003).

Anxiety is a word so commonly used that many people don't understand what it means in mental health care. It refers to an unpleasant and overriding mental tension that has no apparent identifiable cause. On other hand fear causes mental tension due to a specific, external reason, such as when your car skids out of control on ice. Fears are not normal, however, when they become overwhelming and interfere with daily living. They are symptoms of an anxiety disorder, the most common and most successfully treated form of mental illness (American Psychiatric Association, 2004).

Anxiety disorders are serious medical illnesses that affect approximately 19 million American adults. These disorders fill people's lives with overwhelming anxiety and fear. Effective treatments for anxiety disorders are available, and research is yielding new, improved therapies that can help most people with anxiety disorders lead productive, fulfilling lives. If you think you have an anxiety disorder, you should seek information and treatment. Generalized anxiety disorder is much more than the normal anxiety people experience day to day. It's chronic and fills one's day with exaggerated worry and tension, even though there is little or nothing to provoke it. Having this disorder means always anticipating disaster, often worrying excessively about health, money, family, or work. Sometimes, though, the source of the worry is hard to pinpoint. Simply the thought of getting through the day provokes anxiety (Hendrix, 2000).

Alpert and Ewy (2002) said that the predominant emotion most patients' experience, during the first few days in a coronary care unit is anxiety coupled with gratitude for surviving. (Alpert and Ewy, 2002).

Although the study of anxiety has produced even more inconsistent results but Symptoms of depression and anxiety are common following myocardial infarction and have been observed to persist in the months subsequent to MI, depression and anxiety would appear to predict fatal and non-fatal events (Lane et al, 2002).

Anxiety and depression are the most extensively investigated psychosocial variables in patients with CAD. Horgan and associates noted that 50% of their population had high scores on measures of anxiety and depression before coronary artery bypass graft surgery, and 33% had similar scores postoperatively. Other studies have shown that 12% to 57% of patients have persistent psychosocial impairment, anxiety, and depression up to 2 years after surgery (Grenier et al, 1997).

## **1.2 Problem Statement**

The purpose of the study was to study prevalence of anxiety, depression among coronary heart disease and associated factors for coronary heart disease.

Coronary heart disease are common health problems in the worldwide in both sex, CAD is responsible for causes of death and disability, become a major public health problem.

Risk factors for heart disease other than depression include high levels of cholesterol (a fat-like substance) in the blood, high blood pressure, and smoking. On the average, each of these doubles the chance of developing heart disease. Obesity and physical inactivity



are other factors that can lead to heart disease. Regular exercise, good nutrition, and smoking cessation are key to controlling the risk factors for heart diseases.

Psychological factors has been implicated in the onset and progression of coronary heart disease (CHD ) Recent research has highlighted the importance of depression and anxiety as independent risk factors for mortality in cardiac patients. Depression, anxiety may be follow attack of coronary heart disease (CHD) or present before and after cardiac procedure. In Palestine compare with other countries CAD is common causes for death the major mortality rate of heart disease was 55.8per 100.000.

In professional level as I am working in coronary care unit at Al Shifa Hospital, I observed that psychological aspect especially anxiety and depression are very important for progress coronary heart disease.

### **1.3 Justification of study**

Coronary heart disease is major cause of death and disability, and it is the most common cause of death in both sexes worldwide. Cardiovascular diseases rank first as a cause of premature death in industrialized countries, occurring in age groups in which productivity is highest and social and family responsibilities are most demanding, Developing countries are likely to be exposed to a similar experience as they proceed with their socioeconomic development (Firdosi et al, 1995).

According to WHO in 2004 the world is suffering from an increasing burden of mental disorders, and a widening "treatment gap". Today, 450 millions people suffer from a mental or behavioral disorder, yet only small minorities of them receive even the most basic treatment. Globally, many are victimized for their illness and become the targets

of stigma and discrimination. Further mental disorders represent four of the 10 leading causes of disability worldwide. This growing burden amounts to a huge cost in terms of human misery, disability and economic loss (WHO, 2004).

To the researcher knowledge, there are no studies or previous experiences about psychological disorder among coronary heart disease patients. In professional level as I am working in coronary care unit for the last six years, I observed that psychological factors is playing a big role in coronary heart disease, the study will focus on psychological factors among coronary heart disease.

#### **1.4 Aim of study**

To study anxiety, depression among coronary heart disease (CHD) patients at Al Shifa hospital prevalence and associated factor.

##### **1.4.1 Research objectives:**

1. To study prevalence of anxiety, depression among coronary artery disease patients
2. To identify the common risk factor among coronary artery disease patients.
3. To examine the relationship between the anxiety, depression and coronary heart disease patients at Al Shifa Hospital.
4. To examine the relationship between prevalence of anxiety, depression and demographical character.

## **1.5 Research questions**

1. Is there relationship between prevalence of anxiety, depression and total among coronary heart disease?
2. What are the main associated factors in coronary artery disease in Al-Shifa Hospital- Gaza?
3. Is there relationship between prevalence of anxiety, depression and total and sociodemographic factors (age, sex, income, martial status, level of education) among coronary artery disease patients?
4. Are there any statistical significant differences in (anxiety, depression, and total degree) referred to the Beta Blocker taken?
5. Are there any statistical significant differences in (anxiety, depression, and total degree) referred to the number of admission?

## **1.6 Operational definitions**

According to Hopkins Symptom Checklist Anxiety define as in verity statement, the researcher define Anxiety is the degree or level which are obtain` subject from sample annex (1.6).

According to Hopkins symptom checklist; depression define as in verity statement, the researcher define depression is the degree or level which are obtain subject from sample annex (1.6).

Coronary heart disease is a registered coronary heart disease patient who admitted to coronary care unit, diagnosis confirmed by physician angina or MI or both in both sexes.

Body-mass index (BMI): according to WHO criteria, 1995 is defined as the body weight in kilograms divided by the squared height in meters ( $\text{kg/m}^2$ ) annex (1.1).

Weight and height measurement: weight and height were measured with the participant in standing position without shoes and heavy garments; weight was recorded to the nearest kilogram, and height to the nearest full centimeter, the scales was checked at least once at the start using standard weights or height (calibrated).

### **1.7 Geographical characteristics**

Palestine National Authority territories comprise two areas separated geographically, West Bank and Gaza Strip. West Bank lies within an areas of 5800 k m .Gaza Strip is, narrow piece of land lying a semi-arid region of about which lies on the coast of Mediterranean sea coastline is 40 kilometers. Gaza Strip is very crowded place within area 365 square kilometers the population is mainly concentrated in the Gaza City, small village and eight refugee camp that contain two third of population. Gaza strip divided into five governorates: north Gaza, mid zone, khan Younis, and Rafah (MOH, 2004).

## 1.8 Demographic characteristics

The Palestinians people over all the world is 9.305.222 million by the end of 2004. in the end of 2004 West Bank which 2.476.321 , 1.256.053 are male and 1.220.268 are female.

In Gaza strip estimated 1.443.737 (36.7%), 731.251 are male, 712.486 are female (PCBS, 2004).

The population density was 3.754.4 /square kilometer, WB 418.7/square kilometer. Refugees represent population Palestine 4136.449, Gaza Strip about 922.674 (65.5%), of total Palestinian refugee, West Bank less than Gaza Strip was 665.246 (29.4%).(PCBS, 2004) .

Palestinian population pyramid shows age and sex distribution 46% from 0-14 years: (male 32,582; female 316,606), 48.3% from 15-64 years: (male 326,450; female 314,098), 2.7% from 65 years and over: (male 14,847; female 20,408 (MOH, 2004).

MOH in 2004 reported that Population growth rate 3.83%, birth rate 27.2 births/1,000 population, In 2003 Declined Crude Death Rate to 2.7 deaths/1,000 population and life expectancy which found total population: 72.3 years , male: 70.7 years , female : 73.8 years . Infant mortality rate (IMR) in West Bank 11.2per /1000live births in Gaza strip IMR 24 deaths/1000 births live births (MOH, 2004).

In Gaza strip the main leading cause of infant deaths in 2003 were Premature and low birth weight (41.1%), congenital malformation (14.3%), pneumonia, other respiration

disease (13.1%), and infectious disease (6.6%) sudden infant syndrome (5.8%) (MOH 2004).

In 2003 these disease responsible for 81.6% of total death in Palestine. The main leading to cause death were heart disease (20.1%), cerebrovascular disease (11.1%), perinatal period (9.7%), malignant neoplasm (9%), accident (8.8%), senility (5.7%), hypertension (4.9%), pneumonia and other respiratory disorder (4.8%) (MOH 2004).

### **1.9 Socioeconomic context**

According to MOH (2004), economic output in the Gaza Strip - under the responsibility of the Palestinian Authority. The downturn was largely the result of Israeli closure policies - the imposition of generalized border closures which disrupted previously established labor and commodity market relationships between Israel and the West Bank and Gaza Strip. The most serious negative social effect of this downturn was the emergence of high unemployment; unemployment in West Bank and Gaza Strip, the during the 1980s was generally under 5%; by 1995 it had risen to over 20%. Israel's use of comprehensive closures , in 1998, Israel implemented new policies to increased Palestinian life difficulties by increased the closures , restriction on Palestinian travel and other security procedures on the movement of Palestinian goods and labor.; Palestinian self-rule areas and a severe disruption of trade and labor movements. In 2001, and even more severely in 2002, Israeli military measures in Palestinian Authority areas resulted in the destruction of capital plant and administrative structure, widespread business closures, and a sharp drop in GDP. Including West Bank, the UN estimates that more than 135,000 Palestinians in 1999 then decrease to 50.000 in 2003

due to political situation and recurrent crisis in Palestine. The worker in Palestine increases from 453000 in 1999 to 474000 in 2003 (MOH, 2004).

Poverty rate more than 33% in 1998, Unemployment rate 40%, now more than this number (PCBS, 2004).

Gross national production was 5.454 \$ in 1999 and decreased to 3.705 \$, Gross Domestic production 3.257 \$ that pointed to Most of Palestinian family under poverty line (MOH 2004).

All these condition surrounded with Palestinian people so result high level of stress that affect on social , health life so increased the prevalence of cardiac disease and other psychological disorder special in the children , increased hospital review and admission of myocardial infarction in coronary care unit especially pomp days by Israel helicopter (Abu Taweellia., 2001).

## **1.10 Health system**

Health services in Gaza Strip provided by six main sector , United Nation Relief Work Agency (UNRWA), Non Governmental Organizations (NGOs), Private, Military health services, PRCs and Ministry of Health (MOH), MOH control of the most health services in Gaza strip and West Bank (MOH, 2004).

### **1.10.1 Primary health care:**

In Gaza Strip 103 centers, 516 in West Bank. 54 primary health center, 32 private center, 17 united nation relief work agency , one community mental health center, and have one rehabilitation private center (MOH, 2004).

### **1.10.2 Secondary health care:**

In Palestine, there are 73 hospitals. The population ratio is 47.922. In Gaza Strip, there are 24 hospitals the average bed capacity per hospital is 79.88 beds. MOH responsible for own and operate 12 hospitals 1462 beds, the ratio is 715/ 10.000population , 23 follow MOH In Gaza city, Al Shifa is (general hospital ), 2 hospitals for children, one hospital for ophthalmic, one psychiatric hospital ,while in south of Gaza Strip (Rafah) 2 general big hospitals, 1 hospital in Khan Younis, 1 in Middle Zone of Gaza Strip, 1 in North of Gaza Strip (PCBS, 2004).

### **1.10.3 Al Shifa Hospital:**

Al Shifa Hospital is the largest governmental hospital in Gaza Strip. It provides all common health services (tertiary, secondary) medical, surgery, obstetric neonatal and maternity. It contains 560 beds (MOH, 2004). Al Shifa hospital consists of coronary care unit, oncology department, thoracic department, dialysis departments, and medical emergency room. Surgical department consists of surgical departments (emergency, heart, cosmetic and burn, general, orthopedic, pediatric, neurology) and intensive care unit, Gynecology department consist all maternity and gynecology department, emergency room, neonatal intensive care. In addition to central laboratory and physiotherapy department. Coronary Care Unit (CCU) is part of medical department and 22 beds.



## **1.11 Summary**

Mental health is very important to complete cycle of health as WHO define health as not merely the absence of disease or infirmity", but rather, "a state of complete physical, mental and social well-being" (WHO, 2004).

In recent years this definition has been given sharper focus by many huge advances in the biological and behavioral sciences. These in turn have broadened our understanding of mental functioning, and of the profound relationship between mental, physical and social health. From this new understanding emerges new hope. In Palestine 1.592 new cases of mental health disorder were reported at community mental health clinic (MOH, 2004)

Today mental and physical illnesses are influenced by a combination of biological, psychological, and social factors. It can cause disabilities to families and communities as well as individuals. Diagnosed and treated cost-effectively. From the sum of our understanding, people with mental or behavioral disorders today have new hope of living full and productive lives in their own communities.

So this study highlight to role of psychological factor particular anxiety, depression spread among coronary heart disease and study if there relation ship between anxiety, depression and coronary heart disease by scientific methods .concern on the main risk factor in coronary heart disease.

# Chapter 2

## Literature Review



Nature of the problem



Research review



Prevalence of risk factors



Prevalence of anxiety



Prevalence of depression



Co morbidity of anxiety depression



Is the depression, anxiety risk factor for Heart disease?



Depression, anxiety not linked to early signs of heart disease



Summary



## **Chapter 2**

### **Literature review**

Heart disease is one of the main causes mortality and morbidity in the developed countries while an emerging prominent public health problem of great concern in developing countries too (Duddy et al, 1992).

Cardiovascular disease is the leading cause of death. Psychiatric disorders are also quite common. Anxiety and depression are more prevalent in patients with CVD than in the general population. Depression has long been linked to poor medical compliance, to other risk factors for CVD such as smoking and obesity, and to greater functional impairment. Depression also independently predicts the development of CVD in the general population, as well as future cardiac events and mortality in patients with CVD. Anxiety or anxiety disorders independently predict sudden cardiac death in the general population as well as future cardiac events in patients with CVD (Schulman et al, 2005).

#### **2.2 Nature of the problem**

National Institution of Mental Health (NIMH) (2002) stated that ischemic heart disease includes two conditions called angina pectoris and acute myocardial infarction. Heart like any muscle, the heart needs a constant supply of oxygen and nutrients that are carried to it by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged and cannot supply enough blood to the heart, the result is coronary

heart disease (CHD) or ischemic heart disease (IHD). If not enough oxygen-carrying blood reaches the heart, the heart may respond with pain called angina. The pain is usually felt in the chest or sometimes in the left arm and shoulder. (However, the same inadequate blood supply may cause no symptoms, a condition called silent angina.) When the blood supply is cut off completely, the result is MI. The part of the heart that does not receive oxygen begins to die, and some of the heart muscle may be permanently damaged. Chest pain (angina) or shortness of breath may be the earliest signs of heart disease. A person may feel heaviness, tightness, pain, burning, pressure, or squeezing, usually behind the breastbone but sometimes also in the arms, neck, or jaws. These signs usually bring the person to a doctor for the first time. Nevertheless, some people have heart attacks without ever having any of these symptoms (NIMH, 2002).

According to international cardiovascular disease statistics, AHA, in 2004 concluded that:

Third monitoring report of WHO in 1991-1993 Cardiovascular disease causes 12 million deaths in the all world each year, they causes half of all deaths in developed countries, and are one of the main causes of death in developing countries and the major causes of death in adults. WHO estimates, 16.7 million people around the globe die of cardiovascular diseases each year.

In 2001 CVD contributed to nearly one-third of global deaths. Low- and middle-income countries contributed to 85 percent of CVD deaths. Were globally 7.2 million deaths from heart disease. CHD is the single largest killer in all worlds, According to data

published in the, The WHO predicts 11.1 million deaths from coronary heart disease in 2020.

By 2010 CVD is estimated to be the leading cause of death in developing countries. By 2020 the WHO estimates nearly 25 million CVD deaths worldwide. Heart disease has no geographic, gender or socioeconomic boundaries. By 2020, cardiovascular diseases, injury and mental illnesses will be responsible for about one half of all deaths and one half of all healthy life years lost, worldwide. Chronic diseases will account for almost three-fourths of all deaths. 71% of deaths due to ischemic heart disease will occur in developing countries.

American Heart Association "AHA" (2005) said that cardiovascular disease is the leading cause of death in 31 of 35 countries reporting Mortality statistics the highest rates of ischemic heart disease were in Argentina, Canada, and Uruguay. The lowest were found initially in Barbados, the Dominican Republic, Mexico and Central America. In the latter group, the rates are still increasing for both sexes.

Prevalence of coronary heart disease in America was in United State of America mortality rate from CVD 60% of total mortality, one person of every 2.6 deaths in 2002. CVD. Coronary heart disease caused 1 of every 5 deaths in the United States. CHD total mention mortality 656,000. MI total mention mortality 225,000. In Canada an estimated 8 million Canadians (1 in 4) have some form of cardiovascular disease. CVD accounts for more deaths than any other disease. 1999 CVD mortality: 78,942; 35 percent of male deaths and 37 percent of female deaths (AHA, 2005).

In Europe CVD is the leading cause of death in Europe, accounting for over 4 million deaths each year. Nearly half (49 percent) of all deaths are from CVD (55 percent of deaths in women and 43 percent of deaths in men). About half of all deaths from CVD are from CHD and nearly one third is from stroke (AHA, 2005).

CHD alone is the most common cause of death in Europe, accounting for nearly 2 million deaths each year. More than 1 in 5 deaths of women (22 percent) and men (21 percent) are from CHD. CHD alone is the most common cause of death in the Europe Union, accounting for over 600,000 deaths each year. One in 6 deaths of men (17 percent) and 1 in 7 deaths of women (15percent) in the Europe Union are from CHD (AHA, 2005).

In United Kingdom: Diseases of the heart and circulatory system (cardiovascular disease or CVD) are the main cause of death in the United Kingdom: CVD accounted for more than 245,000 deaths in the United Kingdom in 2001. 40 percent of deaths in the United Kingdom are from CVD (AHA, 2005).

Overall, about 1.5 million men and 1.2 million women living in the UK have had CHD (either angina or heart attack or both). About 275,000 heart attacks (myocardial infarctions) occur annually in the (151,000 in men and 124,000 in women in 2001). In Scotland in 1998 mortality rates from coronary heart disease 25% almost one of six being below age 65years (AHA, 2005).

AHA in 2005 sated that prevalence of CHD in Asia CVD is now more numerous in India and China than in all economically developed countries in the world added together. In India the proportion of coronary heart disease rose from 4to 33%, higher

prevalence in higher socioeconomic groups. In China mortality rate attributable to cardiovascular disease increase from 12.1% in 1957 to 35.8% in 1990 of total death in urban areas. In Japan has the lowest death rate of cardiovascular disease, with France second lowest and Canada third lowest.

AHA in 2005 prevalence of CHD in Eastern Mediterranean, in developing countries twice as many deaths from CVD now occur. A particular cause for concern is the relatively early age of CVD deaths compared with those in the developed regions. Lower socioeconomic groups have a greater prevalence of risk factors, higher incidence of disease and higher mortality. In developing countries, as the CVD epidemic matures, the burden will shift to the lower socioeconomic groups.

By 2020, 71 percent of deaths due to ischemic heart disease will occur in developing countries (AHA, 2005).

At present, only some hospital-based mortality data are available for Oman, as it does not yet have a national death registration system. This reveals that ischemic heart diseases and cerebrovascular diseases alone account for 30% of hospital deaths in the age group 15 years and above (Fridosi et al, 1995).

Study on CHD mortality in the Eastern Province of Saudi Arabia, using proportionate mortality ratio, has shown that 26% of total deaths were recorded as CHD death comprising 27.0% of total male and 23.5% of total female deaths respectively (Taha et al, 1998).

Ischemic heart diseases are common health problems in Saudi Arabia. They are the third most common cause of hospital-based mortality after accidents and senility (Khattab et al 1999).

In Israel (1998) CVD responsible on death 269 person per 100.000 population, CHD was 150 people per 100.000 population (AHA, 2004)

In Gaza Strip (1999 – 2000) reported mentioned that the majority of cases were myocardial infarction 18.6% second was arrhythmia 18.4%, third was heart failure 16.4%. Crude mortality of cardiovascular patients' was 2.6% of cause specific mortality of myocardial infarction for these patients was 5.4 % (MOH, 2000).

According (MOH in 2002) Health Research Director reported in 2002 stated that Coronary heart diseases or ischemic heart disease are presenting the majority of cardiac patients was 57.1% , heart failure was second 17.5%, arrhythmia was the third common cause 14.8% , majority case was admission due to coronary heart disease 61.5% is ischemic heart disease of all cardiac diseases (MOH, 2002).

## **2.3 Research Review**

### **2.3.1 Types of risk factors:**

Mehta et al (1995) in study cardiovascular risk factors during the pre-Haj medical examinations in Oman, the aim of study cardiovascular risk factors , study which was undertaken during the pre-Haj medical examination in May 1991, in which 1749 Omanis were screened (Blood pressure levels, body-mass index, serum cholesterol and



sugar). The study showed that 83.5% of the subjects were above 40 years of age. The result showed 13.4% of the study population was found to have hypertension. Which was significant, in comparison on to a study carried out on a similar population in 1989, using the same criteria, which showed that a level of 9.8%. This may indicate an increasing trend of hypertension. Also the result showed that the rate of obesity observed with a factor of BMI 29 appeared to be lower when compared to other studies conducted in the Region, and compared to the rates found in developed countries. Further more, hypercholesterolemia appeared to be a significant risk factor (26.3%), with a large proportion of individuals (32.4%) falling in the borderline category which they need dietary advice and follow-up. Also the study observed a lower level of diabetes which is probably due to determination of only random sugar levels. They conclude that the mean levels of blood glucose and cholesterol were found to be significantly higher in the capital area compared to other regions, indicating that urban lifestyle probably has an effect on the mean levels of these two risk factors (Mehta et al, 1995).

El dabbakakeh (2000) in study coronary heart disease risk factors in Gaza Strip among adult population through a case – control". Aim of study was to assess the risk factors of CAD in Gaza Strip, sample was 100 of cases and 200 control who were free from disease, data were analyzed using SPSS program. Study showed that high prevalence of physical inactivity a 53% of the sample, obesity was 43%, hypertension was 43%, and positive family history of IHD was 38%, history of diabetes mellitus on 34% of the sample, high cholesterol level was 33%, hypertriglyceridemia was 14%, smoking was 50% and a high uric acid level was 25% in the sample.

David et al in 1997 studied risk factors for coronary heart disease among Navajo Indians: his finding of examination 303 men, 485 women between ages of 20-91 years. Coronary heart disease risk factors showed that as follow: Overweight in present (men, 35%; in women, 62%), hypertension (men, 23%; women, 14%) and Diabetes mellitus (men, 17%; women, 25%). Also the study result showed that among 20- to 39-years olds, a large proportion of men reported that they have currently smoke cigarettes (23%); use of chewing tobacco or snuff was also prevalent among these 20- to 39-years old men (37%) and women (31%).

Fasting serum triglyceride concentrations was high (median: men, 132 mg/dL; women, 137 mg/dL), and concentrations of HDL cholesterol was low, particularly among women (median: men, 42 mg/dL; women, 44 mg/dL). Body mass index was associated with levels of most risk factors, and, independently of the level of overweight, a truncal pattern of body fat was related to adverse lipid levels among men. Conclusion of the study was a large proportion of men 20% and women 30% reported not having participated in physical activity during the preceding month. Particularly those for diabetes, may be useful in managing these risk factors to reduce the future burden of coronary heart disease. Concerning the prevalence of many CHD risk factors suggest that its incidence and mortality among the Navajo are likely to increase in the future (David et al, 1997).

Taha and Bella (1998) in study of the Heart disease risk factors: prevalence and knowledge in a primary care setting, Saudi Arabia. Aim of study was to assess prevalence risk factors for heart disease. In random sample of 227 both sexes Saudi attendees aged 18 years was assessed through a cross-sectional study. Data were collected using a structured questionnaire in Arabic, which was modified from the

American Heart Association of South-East Pennsylvania hypertensive screening questionnaire and from the CHD risk factors survey questionnaire.

They found that; high prevalence of smoking (17.6%), overeating and obesity was (17.6%), hypertension was (7.9%) and lack of physical exercise was (6.2%). DM, a common health problem in the area and a major risk factor, was found by only 4% of attendees; 15% of attendees mentioned two or more of the causes. Of the 227 attendees, the main preventive measures mentioned were weight reduction (19.8%), cessation of smoking (18.1%) and exercise (11.0%). Control of hypertension and DM were mentioned by less than 6.0% of attendees (5.7% and 1.3% respectively), while about 15.0% mentioned two or more preventive measures. There was no significant difference in knowledge of causes and preventive measures between males and females. When knowledge of causes and prevention of CHD were stratified by age (< 20 years, 20-34 years, 35-49 years, 50 years). Result of study was high prevalence of DM, obesity, hypertension and lack of exercise. (Taha and Bella, 1998).

EL Navas et al (2001) studied risk factors for coronary heart disease in young men to see whether risk factors in young men predict later death from CHD. The study included 11,016 younger men (18 to 39 years of age) and 8955 middle-aged men (40 to 59 years of age). All were employees of companies none of the men had diabetes. The men answered standard questions about their smoking and medical history. The researchers followed the men for 20 years. Local and national records were reviewed routinely to see how many of the men died and whether they died from CHD or some other causes. They looked at how closely the risk factors were related to death from CHD in younger and middle-aged men. They found that as increasing age, higher cholesterol levels and blood pressure, and smoking was positively related to CHD deaths in both the younger

and the middle-aged men. They conclude that size or strength of the relationships appearing to be similar in both age groups. Abnormal electrocardiograms in middle-aged men were related to CHD deaths; relationship was not clear in younger men. They mentioned that the limitations of the study were some risk factors for CHD, such as diabetes and physical inactivity, were not examined. Women were not studied, and changes in risk factors over time were not evaluated. They conclude that positive associations between risk factors and death do not necessarily mean that changing or treating the risk factors will decrease deaths .

### **2.3.2 Prevalence of anxiety:**

Links between heart and mind have long been known, the familiar symptoms of tachycardia, palpitation and even chest pain during anxious moment attest to the influence of emotional on cardiovascular events. Study focused on the relation between psychological state and common disease such as coronary heart disease. Ten to twenty percent or more of patients seen by cardiologists have primarily a psychiatric basis for their symptoms. Individuals with anxiety states and depressive disorders comprise the largest segment of these patients. The number of individuals being treated with psychotropic medications has risen dramatically over the recent years. They said that acute phase of myocardial infarction is the most psychological response in early stages of MI is denial of the events, The predominant emotion most patients experience during the first few days in a CCU is anxiety, much of the anxiety is based on uncertainty, they recommended that made to explain procedures and medical facts, and why transferred to CCU occurred (Alpert and Ewy, 2002).

Anxiety is conditions of over concern that often contain elements of edginess, worry, or dread. Anxiety states are likely to be accompanied by somatic symptoms that include tachycardia, palpitation, chest pain or tightness and shortness of breathing (Rudisch et al, 2003).

Moser and Dracut (1996) in studied; Is anxiety early after myocardial infarction associated with subsequent ischemic and arrhythmic events? The purpose of this study was to determine the association between patient anxiety early after acute myocardial infarction and the incidence of subsequent in-hospital complications. A sample of study was assessed anxiety level within 48 hours of patient arrival at the hospital in 86 confirmed myocardial infarction patients. Anxiety was measured using the Brief Symptom Inventory. Myocardial infarction complications were defined as reinfarction, new onset ischemia, ventricular fibrillation, sustained ventricular tachycardia, or in-hospital death. The result showed that more complications were seen in patients with higher versus lower levels of anxiety (19.6% vs. 6%). Patients with higher anxiety levels were 4.9 times more likely to have subsequent complications. They concluded that anxiety early after myocardial infarction onset is associated with increased risk of ischemic and arrhythmic complications. This finding suggests that anxiety should be considered among the conventional risk factors for in-hospital acute myocardial infarction complications (Moser and Dracut, 1996).

Kawachi et al (1994) explained symptoms of anxiety and risk of coronary heart disease, they used anxiety symptom scale, observed 402 cases of incident coronary heart disease through a case control method was involve 1869 control subject who remained free of diagnosis of CHD. They concluded that there was an association between anxiety and fatal coronary heart disease, in particular, sudden cardiac death. This result was

concluded from the cohort study at baseline. During 32 years of follow-up, they observed 402 cases of incident coronary heart disease by using an anxiety symptoms scale was constructed of five items from the Cornell Medical Index.

Lavie and Milani (2004) in study is psychological stress a significant risk factor for coronary artery? Aimed of study was to investigated psychological distress, including anxiety, is a significant risk factor for coronary artery disease (CAD). They studied 500 consecutive patients with CAD who completed cardiac rehabilitation and exercise training programs after a major CAD event, such as a heart attack. They observed a very high prevalence of anxiety (40%) and moderate to severe anxiety symptoms (19%) in patients younger than 55 years. The prevalence in this age group was almost twice as high in the older patients. Men and women had a similar prevalence of anxiety and high anxiety symptoms. They conclude that there is a high prevalence of anxiety among patients who have had a recent coronary artery disease episode, but anxiety levels improve markedly after cardiac rehabilitation and exercise training.

### **2.3.3 Prevalence of depression:**

Depression often accompanies anxiety disorders and, when it does, it needs to be treated as well. Symptoms of depression include feelings of sadness, hopelessness, changes in appetite or sleep, low energy, and difficulty concentration. Most people with depression can be effectively treated with antidepressant medications, certain types of psychotherapy, or a combination of both (Hendrix, 2000).

Depression and subsyndromal depressive symptoms were considered; unless otherwise specified, the term depression were used to designate all depressive states, including

major depressive disorder, minor depression, dysthymia, and other subsyndromal forms of depression. While 17% to 27% of patients with coronary artery disease have major depression, a significantly larger percentage has subsyndromal symptoms of depression. They stated that the Patients with coronary artery disease and depression have a two fold to three fold increased risk of future cardiac events compared to patients without depression, independent of baseline cardiac dysfunction. The relative risk for the development of coronary artery disease conferred by depression in patients initially free of clinical cardiac disease is approximately 1.5, independent of other known risk factors for coronary disease (Rudisch et al, 2003).

Sarhan, (2003) said that Depression is common disorder among patients with ischemic heart disease and among patients who are recovering from acute myocardial infarction. The prevalence of minor and major depressive disorders has been reported to be as high as 45% in post – myocardial infarction patients, and 40% in patients with stable ischemic heart disease, Depression is consistent biological abnormality by increase activation of the hypothalamic –pituitary, adrenal axis, which result of high cortisone level and elevated sympathetic tone . Patient with depression have elevated plasma nor-epinephrine, increased heart rate and reduced heart rate variability. Patient with depression have increased platelet activity, both at rest and provocative challenge. Myocardium ischemia can be triggered by mental stress.

Glassman and Shapiro (1998) stated that literature and folk wisdom have long linked depression and death; however, only recently have scientific studies examined the relation between them. Beginning in the 1970s, investigators compared mortality among patients treated for major depression and the general population. Nine of ten studies found an increased mortality from cardiovascular disease among depressed patients.

However, such studies confound the relation between depression and its treatment. They concluded from study depression and the course of coronary artery disease follow.

Depression is unquestionably associated with cardiovascular disease. It is hard not to think of this association in terms of depression causing heart disease. The presence of depression preceding the onset of ischemic heart disease in individuals initially free of disease, the greater risk of sudden death among post-myocardial-infarction patients with both depression and arrhythmia, and the predisposition to increased platelet aggregation among depressed patients all seem to point to a causal relationship. It almost seems obvious that if depression increases the risk of post infarction mortality, then treating depression should reduce the risk. It was clear to cardiologists that ventricular arrhythmia after myocardial infarction predicted death and that antiarrhythmic drug greatly reduced these arrhythmias. It seemed logical that these anti arrhythmic drugs should reduce this mortality (Glassman and Shapiro, 1998).

Monica (1999) in Brazil; studied the role of depression in coronary artery disease". The aim of study was to describe the role of depression and how affected on coronary artery disease? Study pointed to a prevalence of 13% and 5% for major depression and dysthymia, respectively, and of 23% for minor depressive symptoms in the general population. They show that depression and anxiety play a preponderant role in the genesis and course of cardiovascular diseases. Depressive syndrome has been commonly found in patients in the post-AMI period, reaching a prevalence of 45%. Among the patients who developed depressive symptoms, 15% to 33% fulfilled the criteria for major depression. This finding persisted after a 3-month follow-up, in which 33% to 44% of the patients still fulfilled these criteria. Depression is also an important prognostic factor in post-AMI patients relating to a significant increase in CAD



morbidity and mortality. Depression may double the risk for fatal outcomes in individuals in the age range of 40-60 years with cardiovascular diseases. And major depression has an important impact on the prognosis of hospitalized patients in the post-AMI period during the first 6 to 18 months. (Monica, 1999)

Sherina et al (2003) described the prevalence of depression with chronic illness among the elderly in rural community in Malaysia, the aim of study was to determine the prevalence of depression among the elderly. Through a cross sectional study design, a 30- item Geriatric Depression Scale questionnaire was used as screen instrument. 4241 residents in the four villages and one small town from Malaysia studied. A total of 128 of the respondents (57.4%). The result showed the prevalence of depression in the elderly with chronic illness was 9%. Much higher compared to the prevalence of depression among the elderly without any chronic illness which was 5.6%. prevalence of depression with IHD, hypertension and Diabetes Mellitus had a significantly higher compared to respondents without IHD, hypertension and DM. Prevalence of depression can rise from 10 to 30% in patients with chronic illnesses.

In India Goyal et al (2001) study in Psychiatric morbidity among patients attending cardiac out patients department. The aim of study was to investigate relationship between psychiatric factor and cardiac patients by one hundred patients were selected from the cardiology outpatient department by non-probability purposive method. Each patient was evaluated by a psychiatrist and a consultant cardiologist; used Goldberg's General Health Questionnaire. The results of present study indicated very high prevalence (75%) of diagnosable psychiatric morbidity. Depression was most common (38.67%) diagnosis but panic disorder was the main diagnosis (38.10%) among pure psychiatric patients. 21 percent of the patients were not having any organic pathology

and presented to cardiology because of their visceral (cardiac) symptoms eg.chest pain, palpitation ,increased sweating, hot and cold flushes,weakness,choking, breathlessness, easy fatigability and decreased libido (Goyal, A. et al, 2001).

Grenier et al (1997) in study psychosocial aspects of coronary artery disease related to military patients. The aim of study was to highlight differences between military and civilian populations with CAD. depression and anxiety, social support, return to work, and stress. Military patients were psychosocial aspect of coronary artery disease. Methods a computerized literature searches from 1985 to 1995. Prevalence of CAD in young military personnel was first noted during World War II. In 1948. First reported on 866 American soldiers below the age of 39; more than half of these CAD patients came to autopsy, and the remainder survived myocardial infarction. In 1971 in autopsy studies of battle casualties during Korean and Vietnamese campaigns, respectively.

They found that; up to 70% of presumably asymptomatic young soldiers had significant CAD. A recent result reveal of study by examining the extent of coronary artery narrowing in a Canadian civilian population (aged 40 years and under) who died suddenly and unexpectedly found 34.4% of the male subjects had significant narrowing , anxiety and depression are most extensively psychosocial variables in patients with CAD. There is a small but significant subset of patients with CAD who experience clinically significant anxiety, depression, and impaired psychosocial functioning. It is possible that there is a similar prevalence of depression and psychosocial dysfunction in military patients with CAD. Depression and anxiety may be undetected in military patients with CAD for several reasons, including physicians' lack of awareness of the psychological morbidity associated with CAD, patients' denial of psychological

symptoms, and the stigma of psychiatric illness in the military. Denial of either physical or psychiatric illness in the military population (Grenier et al, 1997).

Kemp, D. et al, in 2003 in study of depression and heart disease. The aim of study to was assess depression with cardiac patients They explored the relationship between depression and heart disease, in a 4-year study of 2,847 men and women, they found that the risk for cardiac mortality increased with the severity of depression.. Subjects with major depression and no known cardiac disease were nearly four times more likely to suffer cardiac death than no depressed subjects, after adjustment for smoking, body mass index, stroke, diabetes, and cancer. Minor depression was associated with a 1.5 times. They concluded that depression seems to be a bona fide risk factor for coronary artery disease, statistical associations exist between depression and the development of coronary disease, and the prognosis is worse for coronary patients with depression. Moreover, there were plausible physiologic mechanisms to explain the link. Although we do not know if treating depression can improve one's coronary prognosis, it can certainly make the patient feel better. Yet depression is under treated in coronary patients. The result revel that depression is a risk factor for both ischemic heart disease and myocardial infarction (MI). In two studies, subjects with no known cardiovascular disease at baseline were followed up for At least 12 years, and both studies reported that a history of depression was associated with an increased risk of both fatal and nonfatal ischemic heart disease (Kemp et al, 2003).

Hemingway and Marmot (1999) in a study of psychosocial factors in the a etiology and prognosis of CHD , the aim of study was to examine psychosocial factors which cause coronary heart disease or affect survival among patients with coronary heart. They explained that depression predicts a worse outcome depression is associated with

a worse prognosis after an MI, whether the depression was evident before the attack or was diagnosed afterwards. The studies included had a prospective cohort design; a population based sample (a etiological studies in healthy populations); at least 500 participants or 100 participants (prognostic studies in populations of patients with coronary heart disease); measurements of a psychosocial factor used in at least two different study populations; outcomes of fatal coronary heart disease or non-fatal myocardial infarction or (prognostic studies only) all cause mortality. The results showed that depression and anxiety and other psychological factors can cause coronary heart disease or affect survival among patients with coronary heart disease, but the relation between depression and anxiety and coronary heart disease differs from those of other psychosocial factors for several reasons. Firstly, unlike other psychosocial factors, depression and anxiety represent well defined psychiatric disorders, with standardized instruments for measurement. Secondly, depression and anxiety are commonly the consequence of coronary heart disease, and the extent to which they are also the cause poses important methodological issues. Thirdly, the ability to diagnose and treat such disorders makes them attractive points for intervention. Finally, depression and coronary heart disease could share common antecedents for example, environmental stressors and social supports (Hemingway and Marmot, 1999).

#### **2.3.4 Co morbidity of anxiety depression in CHD:**

Lane et al (2000) in study about depression and anxiety predict recurrent coronary events 12 months after myocardial infarction. This aimed was to explore association between depression and anxiety and recurrent coronary heart disease events during the first 12 months subsequent to myocardial infarction. The Beck Depression Inventory and the State-Trait Anxiety Inventory were completed during hospitalization by 288

myocardial infarction patients. The 12-month incidence of recurrent coronary heart disease events (fatal and non-fatal) was determined. Eighty-two patients experienced recurrent coronary heart disease events, including 27 cardiac fatalities, they used SPSS program, The result was There were no statistically significant demographic predictors of recurrent CHD events, Neither depression nor anxiety were associated with recurrent cardiac events, depression and anxiety, measured in hospital 2–15 days after acute MI, did not predict fatal and non-fatal CHD events in the subsequent 12 months. These finding that the result is agreed or odds with the results of other recent prospective studies of the relationship between depression and anxiety following MI and recurrent CHD events. This result during these studies was varied in location, patient population, and the manner in which depression and anxiety was measured, some variation in results is hardly surprising. However, it is difficult to explain the present null result in terms of the extent of depressive and anxious symptomatology in the current sample, since it is similar to that reported by others using the same measures (Lane et al, 2000).

Allonier et al (2004) in study of described anxiety or depressive disorders and risk of ischemic heart disease among French power company employees The aim of this study was to determine whether depression and anxiety are predictive factors for ischemic heart disease among adults <60 years. Through a case-control method. Sample was men aged 31–55 years who presented an initial clinical form of ischemic heart disease from 1993 to 1997, collected from the company registry 660 men were each matched by age to 10 controls per case. The result showed that significant association between ischemic heart disease and sick-leave for any medical reason in the 3 years before its onset. This association was strengthened when only absences for depression and anxiety were considered and remained important and significant when adjusted for socioeconomic

status. Depressive and anxiety disorders that lead to absenteeism seem to be associated with an increased risk of ischemic heart disease in the 3 years thereafter, especially when depression and anxiety were severe and chronic; this association is independent of socioeconomic status.

### **2.3.5 Is the Depression, Anxiety Risk Factor or Causes Heart Disease?**

Lane et al (2000) in study of the effects of depression and anxiety on mortality and quality of life 4 months after myocardial infarction. The aim of this study was to determine the impact of depression and anxiety on mortality and quality of life in patients hospitalized for an acute myocardial infarction. They use Questionnaire measures of depression and anxiety were completed during hospitalization by 288 MI patients. Results were a total of 25 patients died, 22 from cardiac causes, during the 4-month follow-up. Symptoms of depression and anxiety did not predict either cardiac or all-cause mortality. Severity of infarction, extent of heart failure, and a longer stay in hospital predicted mortality. Symptoms of depression and anxiety predicted 4 in month quality-of-life among survivors, as did gender, partner status, occupational status, living alone, previous exercise behavior, length of hospital admission, and Peel Index scores. In a multiple regression model, depression emerged as the strongest predictor of quality-of-life. State anxiety, severity of infarction, and partner status also entered the model. They concluded that of the study neither depression nor anxiety predicted mortality 4 Months after MI. Both depression and anxiety predicted quality-of life at 4 months among survivors.

Hippisley et al (1998) in study of depression as a risk factor for ischemic heart disease in men: population based case-control study, the aim of study to determine the relation between depression, anxiety, and use of antidepressants and the onset of ischemic heart disease. They concluded that depression may be an independent risk factor for ischemic heart disease in men, but not in women, through a case-control method, 623 patients by: 188 male cases with ischemic heart disease matched by age to 485 male controls without ischemic heart disease; 139 female cases with IHD matched by age to 412 female control. The risk of ischemic heart disease was three times higher among men with a recorded diagnosis of depression than among controls of the same age (Hippisley et al,1998).

Luukinen et al (2003) in study depressive symptoms and the risk of sudden cardiac death among the elderly. The aims of study was to assess if depressive symptoms specifically increase the risk of sudden cardiac death among the elderly subjects. A sample were All persons aged 70 years or over of a defined area in Northern Finland 336 men and 579 women participated in the questionnaire on depressive symptoms Short Zung Depression Rating Scale. The result showed that Four hundred and seventy-six subjects out of 915 (52%) died during the follow-up of 8 years. Thirty-eight of deaths were sudden cardiac death (8%) and non- sudden cardiac death occurred in 106 subjects (22%). A high score of depression symptom was a significant predictor of subsequent sudden cardiac death. They concluded that depressive symptoms increase the risk of sudden cardiac death , but not that of non- sudden cardiac death and non-fatal MI among the elderly subjects.

Schulz et al (2000) in study of association between depression and mortality in older adults, the aim study to examine the relation between baseline depressive symptoms and

6-year all-cause mortality in older persons, systematically controlling for sociodemographic factors, clinical disease, sub clinical disease, and health risk factors. Methods a total of 5201 men and women aged 65 years and older from 4 communities participated in the study. Depressive symptoms and 4 categories of covariates were assessed at baseline. The primary outcome measure was 6-year mortality. They concluded that high levels of depressive symptoms are an independent risk factor for mortality in community-residing older adults. Motivational depletion may be a key underlying mechanism for the depression-mortality effect (Schulz et al ,2000).

Goodacre et al (2001) investigated chest pain, psychological morbidity, and quality of life, the purpose of study: measure psychological morbidity and health-related quality of life among patients attending the hospital with acute chest pain both at presentation and 1 month after rigorous assessment for cardiac disease. They used consecutive patients undergoing assessment on the chest pain observation unit of a large, urban emergency department were asked to complete 3 questionnaires: the short form 36 health survey, the euroqol health utility questionnaire, and the hospital anxiety and depression scale. The results: (15% to 26%) were experiencing moderate levels of anxiety and 21 (8% to 19%) were experiencing moderate levels of depression. Health utility and all dimensions of quality of life were substantially below age-adjusted normal values. They conclusion that Patients with acute, undifferentiated chest pain have substantial psychological morbidity and impairment of quality of life. Anxiety and depression remain prevalent and quality of life remains impaired 1 month after assessment.

Shah et al (2004) in study of heart and mind: relationship between cardiovascular and psychiatric conditions. Which aimed to reviewed the evidence linking cardiovascular and neuropsychiatry disorders and the possible mechanisms and pathophysiology of this



association. The result showed that there is quite convincing evidence regarding relationship between diseases of the psyche and conditions affecting the cardiovascular system. This association is particularly strong in patients with depression and phobic anxiety. Depressive symptoms as well as depressive case ness seem to be influential in predicting IHD. It is, however, unclear what the effect of duration of depression is on risk. In case of phobic anxiety, there is a clear association with increased risk of sudden cardiac death. It is probably related to increased susceptibility to arrhythmias. Like depression, this association with increased myocardial mortality has clinical therapeutic implications (Shah et al, 2004).

### **2.3.5 Depression, anxiety not linked to early signs of heart disease:**

O'Malley and Patrick (2000) in study of early signs of heart disease was linked to traditional heart risk factors, including higher blood pressure, higher body mass index and elevated levels of LDL ("bad") cholesterol and blood fats called triglycerides. But when the investigators took these risk factors into account, there was no connection between calcification and depression, anxiety, hostility or stress. People with these psychological symptoms were no more or less likely to have calcium deposits in their arteries than people without the symptoms. The only psychological factor related to the risk of calcification was somatization, which occurs when mental symptoms present themselves as physical symptoms. Patrick G. O'Malley in this studies; however, having somatic symptoms was linked to a lower, not higher, risk of calcification. This finding was unexpected, according; one possible explanation is that people with somatic symptoms may have healthier lifestyles, which would reduce their risk of calcification.

O'Malley's team concludes that Even though depression, anxiety, hostility and stress have been linked to an increased risk of coronary artery disease, these psychological factors do not appear to affect the risk of developing calcium deposits in heart vessels, an early sign of heart disease more research is needed to see what role psychological factors play in the progression of early signs of heart disease to clinical heart disease. (O'Malley and Patrick, 2000).

## **2.4 Summary**

From this chapter after review of literature that related to my thesis show that many study discuss this topics, many study done in the past through prospective study other as a case control and cross sectional methods, used different sample size and used vary instrument of variables according to culture consistence such as Short Zung Depression Rating Scale , Geriatric Depression Scale , Beck Depression Inventory , Brief Symptom Inventory for anxiety , screen of coronary risk factors and structure questionnaires. Literatures summary the result as the prevalence risk factors for CAD are age , sex , lack of physical activity , smoking , DM, hypertension , obesity , cholesterol , hyperlipidiema, positive family history. All these studies provided that anxiety, depression associated with coronary artery disease accepts of O'Malley and Patrick in 2000 that study isn't association depression associated with coronary artery disease. Literature review consistence with research view that the prevalence of risk factors for attack CAD are many and vary form culture to another and there are relationship between coronary heart disease and anxiety and depression. Anxiety and depression are play big roles of progressive and development of coronary heart disease.

# Chapter 3

## Theoretical Framework



Anxiety



Depression



Coronary Heart Disease

## **Chapter 3**

### **Theoretical Framework**

In this chapter we will define anxiety, depression and coronary artery disease and study the types, symptoms, causes and treatment.

#### **3.1 Anxiety**

Anxiety is exceptionally common in patients with ACS, with an in-hospital incidence approaching 50% among patients in the coronary care unit. Furthermore, the vast majority of these patients' goes undiagnosed and under treated or is not treated at all. Anxiety may cause a variety of physiological responses; anxiety exerts a significant acute and chronic influence on outcomes following ACS, increase in risk for ischemic complications resulting from anxiety following MI. In fact, that early in-hospital anxiety following MI was one of the best predictors for in-hospital complications (Januzzi et al, 2000).

##### **3.1.1 The mechanism:**

By which anxiety influences outcome in ischemic heart disease remains largely unknown. Patients with anxiety have been shown consistently to have evidence of abnormalities in the balance of the autonomic nervous system, characterized by sympathetic nervous system up-regulation, with excessive catecholamine production. Furthermore, impaired vagal control, manifest as an impaired baroreflex response and a decrease in heart rate variability. Clinically, the effect of mental stress on established ischemic heart disease has been demonstrated, significant stress-related increases in the

risk for recurrent ischemia, MI, or death. Stress (acute, sub acute, or chronic) has been shown to provoke myocardial ischemia via numerous Mechanisms in-patients with CAD. Patients with CAD subjected to mental Stress. Additionally, patients with Anxiety and CAD often exhibit an exaggerated systemic response to stress, characterized by an abnormally increased production of catecholamine, which can result in increased myocardial oxygen demand due to elevations in heart rate, blood pressure, and the rate of ventricular contraction. Finally, abnormalities of thrombosis and homeostasis, including increases in platelet aggregability, and alterations in the fibrinolytic system (possibly as a consequence of elevated plasminogen activator inhibitor 1 levels) have been noted in patients subjected to chronic stress. The clinical significance of these findings remains speculative (Januzzi, et al, 2000).

In addition to the biological risks engendered by anxiety, the additive effects of adverse behavioral risk factors (e.g., excessive nicotine and perhaps caffeine) in anxious patients are not to be underestimated. Furthermore, since anxiety frequently coexists with depression, some have argued that the higher mortality in anxious patients may be due to the presence of depression rather than anxiety per se (Januzzi, et al, 2000).

The word anxiety means "a state of being uneasy, apprehensive, or worried about what may happen." It is also described as a "feeling of being powerless and unable to cope with threatening events characterized by physical tension ( Lark, 2002).

### **3.1.2 Definition:**

WHO, in world health day in 7 April 2001 define Anxiety is one of the feelings all of us experience when we are under stress; physical, social, economic, psychological. It helps

at times by driving us to action to remove the source of anxiety, however if it becomes too much it can result in us being unable to do anything. Anxiety results in a feeling of impending doom, fear (which can be intense), dryness of mouth, sweating, restlessness, racing heart, butterflies in the stomach, itching and tingling all over the body, shortness of breath, having to visit the bathroom repeatedly, inability to concentrate, make decisions, carry out work, eat or sleep(WHO,2001).

Lark (2002) defines the anxiety that the word anxiety means "a state of being uneasy, apprehensive, or worried about what may happen." It is also described as a "feeling of being powerless and unable to cope with threatening events characterized by physical tension.

Sadock and Sadock (1999) define Anxiety as refers to a number of different entities –a normal transient feeling, often with adaptive functions, a symptom seen in a wide variety of disorder and a group of disorders in which the symptom of anxiety forms a dominant element, anxiety characterized by intense negative affect, associated with an undefined threat to one's physical or psychology self .patients use words such as tense, panicky, terrified, jittery, nervous, wound up, apprehensive. Additionally characterized by somatic, cognitive, behavioral and perceptual symptoms.

### **3.1.3 Types of anxiety disorders:**

Lark, (2002) defines those there three major types of psychologically- based anxiety disorders:

- Generalized anxiety disorder.
- Panic disorder.
- Phobias.

Research in brain chemistry has shown that these anxiety disorders may also be linked to specific chemical changes in the brain, thus suggesting a strong mind-body link. The field of psychiatry recognizes other types of anxiety disorders, such as obsessive-compulsive disorder and post-traumatic stress syndrome.

APA (2004) refers anxiety disorders to a group of illnesses: generalized anxiety disorder, phobias, panic disorders, post-traumatic stress disorder and obsessive-compulsive disorders.

When people suffering from anxiety disorders talk about their condition, they often include these descriptions: unrealistic or excessive worry , unrealistic fears concerning objects or situations, exaggerated startle reactions, flashbacks" of past trauma , sleep disturbances, ritualistic behaviors as a way with dealing with anxieties, shakiness, trembling, muscle aches, sweating, cold/clammy hands, dizziness, jitteriness, tension, fatigue, racing or pounding heart, dry mouth, numbness/tingling of hands, feet or other body part, upset stomach, diarrhea, lump in throat, high pulse and/or breathing rate .In addition, people suffering from anxiety disorders are often apprehensive and worry that something bad may happen to themselves or loved ones. They often feel impatient, irritable and easily distracted (APA, 2004).

### **3.1.3.1 Generalized Anxiety Disorder:**

People with generalized anxiety disorder suffer with unrealistic or excessive anxiety and worry about life circumstances. For example, they may feel panicky about financial matters even though they have a good bank balance and have paid their debts. Or they may be preoccupied constantly about the welfare of a child whose safe at school. People with generalized anxiety disorder may have stretches of time when they're not consumed by these worries, but they are anxious most of the time. Patients with this disorder often feel "shaky," reporting that they feel "keyed up" or "on edge" and that they sometimes "go blank" because of the tension that they feel. They often suffer also with depression (APA, 2004).

### **3.1.3.2 Phobias:**

This type of anxiety disorder afflicts over 12 percent of all Americans during their lifetimes. People who suffer from this illness feel terror, dread or panic when confronted with the feared object, situation or activity. Many have such an overwhelming desire to avoid the source of fear that it interferes with their jobs, family life and social relationships. They may lose their jobs because they can't go to business lunches for fear of eating in front of others. They may quit a job in a high-rise office to work on the ground floor because they fear elevators. They may become so fearful of leaving their homes that they live like hermits. The following are common phobias:

**A.** Social phobia is the fear of situations in which a person can be watched by others, such as public speaking, or in which the behaviors which arise from the person's feelings might prove embarrassing, such as eating in public. It begins in late childhood



or early adolescence -Symptoms of Social Phobia manifest themselves physically and can include: palpitations, tremors, sweating, diarrhea, confusion, blushing (APA, 2004).

**B.** Simple phobia is the fear of specific objects or situations that cause terror. The condition can begin at any age. Examples are fear of snakes, fear of flying, or fear of closed spaces. Some of these phobias are often normal in early childhood (APA, 2004).

**C.** Agoraphobia, the fear of being alone or in a public place that has no escape hatch (such as a public bus), is the most disabling because victims can become housebound. The illness can begin any time from late childhood through early adulthood and, left untreated, worsens with time (APA, 2004).

### **3.1.3.3 Panic Disorders:**

Panic disorders afflict 1.5 million from Americans. The victims suddenly suffer intense, overwhelming terror for no apparent reason, the fear is accompanied by at least four of the following symptoms: sweating, heart palpitations, hot or cold flashes, trembling, feelings of unreality, choking or smothering sensations, shortness of breath, chest discomfort, faintness, unsteadiness, tingling, fear of losing control, dying or going crazy (APA, 2004).

Often, people suffering of a panic attack for the first time rush to the hospital, convinced they are having a heart attack. Sufferers can't predict when the attacks will occur. Certain situations, however, such as driving a car, can become associated with them if it was in those situations where the first attack occurred. Untreated, panic sufferers prevalence rates are 2% in despair and become suicidal (Thabet, 1996).

### **3.1.3.4 Obsessive-Compulsive Disorders:**

Afflict 2.4 million Americans people with obsessive-compulsive disorders suffer with obsessions; often begin during the teens or early adulthood. Which are repeated, intrusive, unwanted thoughts that cause distress and extreme anxiety. They may also suffer with compulsions, which psychiatrists define as rituals--such as hand washing--that the person with the disorder goes through in an attempt to reduce his or her anxiety. People who suffer from obsessive disorders do not automatically have compulsive behaviors. However, most people with compulsions also have obsessions. Victims of obsessions are plagued with involuntary, persistent thoughts or impulses that are distasteful to them. Examples are thoughts of violence or of becoming infected by shaking hands with others. These thoughts can be fleeting and momentary or they can be Lasting ruminations. The most common obsessions focus on a fear of hurting others or violating socially acceptable behavior standards such as swearing or making sexual advances. They also can focus on religious or philosophical issues, which the patient never resolves (APA, 2004).

People with compulsions go through senseless, repeated and involuntary ritualistic behaviors which they believe will prevent or produce a future event. However, the rituals themselves have nothing to do with that event. For example, a person may constantly wash his or her hands or touch a particular object. Often, people with this disorder also suffer from a complementary obsession such as a worry over infection (APA.2004).

Examples of compulsive rituals include: Cleaning, which affects women more often than men? If victims come in contact with any dirt, they may spend hours washing and cleaning even to the point that their hands bleed , Repeating a behavior, such as

repeatedly saying a loved one's name several times whenever that person comes up in conversation, Checking, which tends to affect men more than women? For example, victims check and recheck that doors are locked or electric switches, gas ovens and water taps are turned off. Other patients will retrace a route they have driven to check that they did not hit a pedestrian or cause an accident without knowing it.

### **3.1.3.5 Post-Traumatic Stress Disorder:**

Often associated with war veterans, post-traumatic stress disorder can occur in anyone who has experienced a severe and unusual physical or mental trauma. People who have witnessed a mid-air collision or survived a life-threatening crime may develop this illness. The severity of the disorder increases if the trauma was unanticipated.

For that reason, not all war veterans develop post-traumatic stress disorder, despite prolonged and brutal combat. Soldiers expect a certain amount of violence. Rape victims, however, are unsuspecting of the attack on their lives. People who suffer from post-traumatic stress disorder re-experience the event that traumatized them through:

- Nightmares, night terrors or flashbacks of the event. In rare cases, the person falls into a temporary dislocation from reality in which he or she relives the trauma. This can last for seconds or days.
  
- Psychic numbing or emotional anesthesia. Victims have decreased interest in or involvement with people or activities they once enjoyed.

- Excessive alertness and highly sharpened startle reaction. A car backfiring May cause people once subjected to gunfire to instinctively drop to the ground.
- General anxiety, depression, inability to sleep, poor memory, difficulty concentrating or completing tasks, survivor's guilt (APA, 1994).

### **3.1.4 Theories of anxiety:**

#### **3.1.4.1 Psychoanalytic theory:**

Psychoanalytical approach is its concept of anxiety is a state of tension that motivates us to do something; it develops out of a conflict among id, ego and superego over control of available psychic energy. Its function is to warn of impending danger.

S. Freud divided anxiety into reality, neurotic and moral anxiety. Reality anxiety is fear of danger from the external world, neurotic and moral anxiety is evoked by threats to the balance of power within the person. Ego unless appropriate measures are taken, the danger may increase until the ego is overthrown. S. Freud suggests that anxiety stems from unconscious conflicts that arose from discomfort during infancy or childhood. For example, a person may carry the unconscious conflict of sexual feelings toward the parent of the opposite sex. Or the person may have developed problems from experiencing an illness, fright or other emotionally laden event as a child. By this theory, anxiety can be resolved by identifying and resolving the unconscious conflict. The symptoms that symbolize the conflict would then disappear (Corey, 1999).

### **3.1.4.2 Behavioral model:**

Lazarus focused on function of occurrences outside the individual while Psychoanalytical approach focused on inner processes. Resting on learning theory, view of behavior as function of learned responses that have occurred as result of a combination of reward and punishment. Behavior that are rewarded remain part of the repertoire of individual. Behavior theory is inherent and emphasizes on external factors as causally related to behavior. Behaviorist view anxiety as learned response that can be unlearned (Turner, 1999).

### **3.1.5 Common causes of anxiety:**

A variety of causes of anxiety disorders Lark (2002) summarize:

#### **3.1.5.1 Genetic factors (familial predisposition):**

Genetic factors seem to have some relevance as risk factors for developing anxiety disorders. In studies of identical twins, the likelihood of both twins having an anxiety disorder if one is afflicted is statistically significant (greater than 30 percent) fraternal twins, who do not have the same genetic makeup. Agoraphobia, the most common anxiety disorder also seems to show a familial predisposition.

### **3.1.5.2 Physiological imbalances:**

Research suggests that with generalized anxiety disorder may have an imbalance of gamma amino butyric acid in their brain. GABA is a neurotransmitter, a substance that transmits messages from one part of the brain to another.

### **3.1.5.3 Family programming:**

Certain types of family environments seem to predispose children to develop anxiety disorders, producing insecurity, fear, and dependency in susceptible children. Not all children raised in stressful family environments develop anxiety disorders. Many children grow up in very difficult family environments without ever suffering excessive anxiety. The likelihood of developing an anxiety disorder when raised in a high-stress family is probably greater in children born with more sensitive and reactive personalities. These are children whose fight-or-flight response is easily triggered by upsetting circumstances.

### **3.1.5.4 Major life stresses:**

People who have suffered from major life stresses over a long period of time, such as marriage to an abusive husband, death, chronic illness in several family members, or constant financial worries.

In addition, a major stress occurring in a short time period can also engender anxiety. This is particularly true when the stressor-such as death of a spouse or loss of a long-term job-causes significant life change or dislocation.

### **3.1.5.5 Personal belief systems:**

Many women have belief systems that reinforce the anxiety disorders and engender behavior that maintains the anxiety state. These include poor self-image and a low estimate of one's abilities. Many women with anxiety disorders are very insecure and feel ill-equipped to make the life changes necessary to confront and change anxiety-related issues.

People with anxiety disorders often hold a negative view of the world. They see life situations and places as dangerous and threatening, whereas women without anxiety disorders may see the same circumstances as harmless and benign. These negative belief systems about the outside world, if too ingrained, may make it difficult to change. (Lark, S. 2002).

## **3.2 Depression**

Convincing evidence for a close connection between the mind and the heart Up to 25% of patients have severe, often recurrent major depression following acute MI, while 65% of patients after MI manifest symptoms Diagnostic of either major or minor depression, the incidence and severity of which are not explainable by central nervous system adverse effects of cardiovascular drugs (e.g., b-blockers or lipid-lowering agents) (Januzzi et al, 2000).

The diagnostic criteria for major depression are determined by the presence of depressed mood and at least 4 of the following (to qualify for a diagnosis of major depression, symptoms must be present for at least 2 weeks):

- Changes in sleep pattern (increased or decreased).
- Decreased interest.
- Changes in appetite (increased or decreased) with or without weight gain or loss.
- Suicidal ideation or thoughts of death.
- Decreased concentration ability.
- Feelings of guilt or preoccupation of thought.
- Decreased energy.
- Psychomotor agitation or retardation.

The impact of major depression on patients after MI is far reaching. For instance, the Medical Outcomes showed that depression causes as much disruption in daily functioning, as do most chronic medical conditions, including heart disease itself. Furthermore, depression and heart disease seem to have independent additive adverse effects on functioning, wellbeing, and mortality. The combination of advanced CAD and depression causes almost twice the social impairment caused by either condition alone. In addition, depressed patients after MI are more likely to report being more anxious or stressed than their counterparts without depression. The evidence that depression affects post-MI prognosis is growing. Those with post-MI depression are at increased risk for subsequent (Januzzi et al, 2000).



Cardiac events, including re infarction and re hospitalization, as Compared with patients after MI without depression (Januzzi et al, 2000).

### **3.2.1 The mechanism:**

By which depression increases morbidity and mortality in these patients is unclear. Patients with depression have baseline elevations in circulating catecholamine and demonstrate an exaggerated response to exogenous stress with abnormally brisk production of catecholamine. Both of these elements of abnormal catecholamine metabolism likely have significant effects on heart rate, blood pressure, cardiac rhythm, and myocardial oxygen consumption. Finally, increases in platelet aggregability have been documented in depressed patients with CAD. Together or independently, these effects may increase the risk for ischemia and activate unstable coronary syndromes. Efforts have been made to determine the relationship between depression and cardiac rhythm disturbances. Depression is likely an increased incidence of sudden death from abnormalities of cardiac rhythm. Impaired baroreflex responses and decreased heart rate variability have also been documented in-patients with depression. Since the long-term prognosis of patients with heart disease and major depression is poorest in those patients with greater than 10 premature ventricular contractions per hour, it is probable that an enhanced susceptibility to arrhythmia exists. Indeed, an increased incidence of significant ventricular tachyarrhythmia has been observed in depressed patients with CAD. The explanation for this phenomenon remains unknown. (Januzzi et al, 2000)

However, the association between depression and decreased heart rate variability leading to a relatively proarrhythmic state, has been invoked. Furthermore, the increased levels of catecholamine noted in depressed patients with CAD may lower the

threshold for ventricular tachycardia or fibrillation. In addition to the biological risks, depressed patients have behavioral issues that may negatively influence their long-term prognosis.

These include decreased adherence to prescribed medications and cardio protective therapies<sup>64</sup> and a lower likelihood of undertaking cardiac risk factor modifications, such as participation in cardiovascular rehabilitation programs and smoking cessation (Januzzi et al, 2000).

### **3.2.2 Definitions:**

National institute of mental health (2002) define depression can strike anyone. People with heart disease are more likely to suffer from depression than otherwise healthy people, and conversely, that people with depression are at greater risk for developing heart disease. Moderate to severe depression occurs in 10% to 20% of patients after an MI Furthermore, people with heart disease who are depressed have an increased risk of death after a heart attack compared to those who are not depressed. Depression may make it harder to take the medications needed and to carry out the treatment for heart disease. Treatment for depression helps people manage both diseases, thus enhancing survival and quality of life.

Where Turner (1999) describe depression is term used in every day language to connote a well-known dysphoric feeling state. In the medical psychiatric depression is referring to a mood, a symptom or a syndrome. Or can define Depression is a cluster of symptoms and behavioral disturbances such as feeling blue, sad, unhappy in response to the difficulties and disappointment of every day life, symptom is usually more intense,

prolonged, varied, or inappropriate to the situation than the common dysphoric mood state.

Lespérance et al (2000) defined depression is not a bad attitude, and it is not simply being pessimistic. It is not feeling sad or down and moody for a few days. It is more than transitory psychological distress. Depression is a consideration of its similarities and differences with the experience of grief. Whereas a sense of loss, despair, and sadness and withdrawal from usual activities are normal following the loss of a loved person, they are also symptoms of depression. However, experiencing and expressing sadness during bereavement is not only normal, but also probably necessary. It is part of the healing process facilitating the psychological separation imposed by the death of a loved person. Similarly, it can also be appropriate to be sad for some period of time following the loss of something significant other than a person; for instance, health, social status, long life expectancy. However, in depression, the period of sadness or lack of interest is abnormally intense, or abnormally long, and interferes with a variety of personal, interpersonal, and social activities. To say that a patient has or does not have a good reason to be depressed is irrelevant. The loss that triggered the symptoms of depression is not always clear to the patient or observer. And Sadock and Sadock (1999) agree with Lespérance (1999) where they defined depression as: The most frequent mood disturbance, describe an emotional state, syndrome and group of specific disorder, patients often evidence depressive symptoms of sadness and feelings of helplessness, worthlessness, and guilt. Loss of interested of work, hobbies or recreational activities may be marked, loss of energy and fatigue .Some depressive state are normal and common reactions to major, unwelcome , and undesirable life events.

WHO (2001) defined depression experience feeling blue, low and worried at times but if these feelings become pervasive, being there all the time, and intense , it can include disturbances of sleep, appetite, feeling him/her self guilty and worthless and deserving of punishment, feeling weepy, finding it difficult to concentrate on his chores and complaining of difficulty with memory. In severe cases, repeated suicidal thoughts and plans can be there. The most common presentation of depressive illness is in the form of vague bodily complaints like aches/pains all over the body, weakness, tiredness, and feeling of heaviness in the head, gases circulating in the stomach, restlessness and palpitations.

### **3.2.3 Classified of depression:**

NIMH (2000) classified of depression as

**3.2.3.1 Major depression:** which sometimes referred to as unipolar or clinical depression, people have some or all of the symptoms for at least 2 weeks but frequently for several months or longer. What is manifested by a combination of symptoms that interfere with the ability to work, study, sleep, eat, and enjoy once pleasurable activities? Such a disabling episode of depression may occur only once but more commonly occurs several times in a lifetime.

**3.2.3.2 Dysthymia:** A less severe type of depression the same symptoms are present though milder and last at least 2 years. People with dysthymia are keep one from functioning well or from feeling good frequently lacking in zest and enthusiasm for life, living a joyless and fatigued existence that seems almost a natural outgrowth of their Personalities. They also can experience major depressive episodes. Involves long-term,

chronic symptoms that do not disable, but. Many people with dysthymia also experience major depressive episodes at some time in their lives.

**3.2.3.3** Bipolar disorder, which also called manic-depressive illness is not nearly as common as other forms of depressive illness and involves disruptive cycles of depressive symptoms that alternate with mania. During manic episodes, people may become overly active, talkative, euphoric, and irritable, spend money irresponsibly, and get involved in sexual misadventures. In some people, a milder form of mania, called hypomania, alternates with depressive episodes. Unlike other mood disorders, women and men are equally vulnerable to bipolar disorder; however, women with bipolar disorder tend to have more episodes of depression and fewer episodes of mania or hypomania.<sup>5</sup> symptoms of depression and mania.

While Grayson (2004) classified depression as, symptoms of depression are part of a more complex psychiatric problem. There are several different types of depression, including: major depressive disorder, dysthymia, psychotic depression, bipolar depression, seasonal affective disorder

#### **A. Major depression;**

Disorder, feels a profound and constant sense of hopelessness and despair. Major depression is marked by a combination of symptoms that interfere with the person's ability to work, study, sleep, eat, and enjoy once pleasurable activities. Major depression may occur only once but more commonly occurs several times in a lifetime (Grayson, 2004). Symptoms of major depression include: sadness, anxiety, irritability,

loss of interest in activities once enjoyed, withdrawal from social activities , inability to concentrate (Grayson, 2004).

### **B. Psychotic depression;**

Roughly 25% of people who are admitted to the hospital for depression suffer from what is called psychotic depression. In addition to the symptoms of depression, psychotic depression includes some features of psychosis, such as hallucinations (seeing or hearing things that aren't really there) or delusions (irrational thoughts and fears).How is psychotic depression different than other mental disorders?

While people with other mental disorders, like schizophrenia, also experience these symptoms, those with psychotic depression are usually aware that these thoughts aren't true. They may be ashamed or embarrassed and try to hide them, which can make diagnosing this condition difficult (Grayson, 2004).

Symptoms of psychotic depression: anxiety (fear and nervousness), agitation, paranoia, insomnia (difficulty falling and staying asleep), physical immobility, constipation (difficulty having a bowel movement), intellectual impairment, Psychosis (Grayson, 2004).]

### **C. Dysthymia;**

Sometimes referred to as chronic depression, is a less severe form of depression but the depression symptoms linger for a long period of time, perhaps years. Those who suffer from dysthymia are usually able to function normally, but seem consistently unhappy. It

is common for a person with dysthymia to also experience major depression at the same time - swinging into a major depressive episode and then back to a more mild state of dysthymia. This is called double depression. (Grayson, 2004).

Symptoms of dysthymia include: difficulty sleeping, Loss of interest or the ability to enjoy oneself, excessive feelings of guilt or worthlessness, loss of energy or fatigue, Difficulty concentrating, thinking or making decisions, changes in appetite, observable mental and physical sluggishness ,thoughts of death or suicide (Grayson, 2004).

#### **D. Seasonal affective disorder:**

Seasonal depression, called seasonal affective disorder (SAD), is a depression that occurs each year at the same time, usually starting in fall or winter and ending in spring or early summer. It is more than just "the winter blues" or "cabin fever." A rare form of SAD known as "summer depression," begins in late spring or early summer and depression," begins in late spring or early summer and ends in fall. Ends in fall. Winter and ending in spring or early summer. It is more than just "the winter blues" or "cabin fever." A rare form of SAD known as "summer depression," begins in late spring or early summer and ends in fall (Grayson, 2004).

Symptoms of winter SAD include the seasonal occurrence of: fatigue, increased need for sleep, decreased levels of energy, weight gain, increase in appetite, difficulty concentrating, and increased desire to be alone. But symptoms of summer SAD include weight loss, trouble sleeping, decreased appetite (Grayson, 2004).

According to American Psychiatric Association. (Diagnostic & Statistic Manual of Mental Disorders, 1994), they explain that major depression in patients with CAD can be difficult to diagnosed , since many of the symptoms of depression, such as loss of interest in usual activities, fatigue, and sleep difficulties, are often attributed to the aftermath of surgery, MI, or other CAD-related events. Thus, knowing how to distinguish between true depression and "normal" cardiac-related symptoms may be particularly challenging. In the absence of a clear cause for a specific symptom of depression, such as midnight insomnia in patients with sleep apnea syndrome or fatigue in patients with thyroid dysfunction, it is wise to be inclusive and attribute the symptoms to the depression rather than to the cardiac disease. To diagnose a major depressive episode, the symptoms must be present for most of the day, every day, for at least 2 weeks, preferably 1 month, and they must result in impairment of daily activities

Key elements that should alert the clinician, beyond the usual chronic sadness and loss of interest, include statements from the patient that life is "out of control," descriptions of anxiety (feeling strained by daily minor stresses, hyper vigilance, multiple somatic complaints), signs of irritability (sudden bursts of anger and hostility, frequent negative and unpleasant comments to others, hypersensitivity to noise), and reports of chronic tiredness. In addition, if clinicians discuss the frequency of depression in CAD with their patients, it may help reduce the reluctance to discuss their symptoms and to seek treatment.

#### **3.2.4 Criteria for diagnosing depression: annex (3.3).**



### **3.2.5 Causes of depression:**

Grayson (2004) said that there is not just one cause of depression. It is a complex disease that can occur as a result of a multitude of different factors, including biology, emotional and environmental influences.

For some, depression occurs due to a loss of a loved one, a change in one's life, or after being diagnosed with a serious medical disease. For others, depression just happened, possibly due to a family history of the disorder.

There is absolute proof that people suffering from depression have changes in their brains compared to people who do not suffer from depression. The hippocampus, a small part of the brain that is vital to the storage of memories, is 9%-13% smaller in women with a history of depression than in those who've never been depressed. A smaller hippocampus has fewer serotonin receptors. Serotonin is a neurotransmitter, a chemical messenger that allows communication between nerves in the brain and the body. Hippocampus is smaller. Investigators have found that cortisol (a stress hormone that is important to the normal function of the hippocampus) is produced in excess in depressed people. They believe that cortisol has a toxic or poisonous effect on the hippocampus. It's also possible that depressed people are simply born with a smaller hippocampus and are therefore inclined to suffer from depression (Grayson, 2004).

NIMH (2000) describes the causes of depression as the following:

## **1- Genetic factor**

Is a risk for developing depression when there is a family history of the illness, indicating that a biological vulnerability may be inherited. The risk is somewhat higher for those with bipolar disorder. However, not everybody with a family history develops the illness. In addition, major depression can occur in people who have had no family members with the illness. This suggests that additional factors, possibly biochemistry, environmental stressors, and other psychosocial factors, are involved in the onset of depression.

## **2- Biochemical evidence**

Indicates that brain biochemistry is a significant factor in depressive disorders. It is known, for example, that individuals with major depressive illness typically have dysregulation of certain brain chemicals, called neurotransmitters, disturbance or reduce level of dopamine, serotonin, norepinephrine and acetylcholine in depression. Additionally, sleep patterns, which are biochemically influenced, are typically different in people with depressive disorders. Depression can be induced or alleviated with certain medications and disturbance of adrenal, pituitary or thyroid gland hormones have mood-altering properties. What is not yet known is whether the “biochemical disturbances” of depression are of genetic origin, or are secondary to stress, trauma, physical illness, can result from disturbances of electrolyte metabolism increased level of sodium or some other environmental condition can lead to depression (NIMH, 2000).

### **3- Environmental and other stressors**

Significant loss, a difficult relationship, financial problems, or a major change in life pattern have all been cited as contributors to depressive illness. Sometimes the onset of depression is associated with acute or chronic physical illness. In addition, some form of substance abuse disorder occurs in about one-third of people with any type of depressive disorder (NIMH, 2000).

### **4- Psychosocial factors**

Persons with certain characteristics of pessimistic thinking, low self-esteem, a sense of having little control over life events, and a tendency to worry excessively—are more likely to develop depression. These attributes may heighten the effect of stressful events or interfere with taking action to cope with them or with getting well. Upbringing or sex role expectations may contribute to the development of these traits. It appears that negative thinking patterns typically develop in childhood or adolescence. Some experts have suggested that the traditional upbringing of girls might foster these traits and may be a factor in women's higher rate of depression (NIMH, 2000).

#### **3.2.6 Risk factors of depression:**

Turner (1999) summarizes risk factors of depression as:

##### **3.2.6.1 Demographic factors:**

Correlations between demographic factors and the occurrence of depression are important because they help to identify subgroups at risk.

Turner (1999); said that sex is the most important finding is greater prevalence of depressive disorders among woman. The ratio 2:1 female to male. The preponderance of woman among depressed patients seems to be even higher for less severe depression. Silverstein in 1999 concluded that female higher prevalence than male when study prevalence of somatic and major depression. Women experience depression about twice as often as men. Many hormonal factors may contribute to the increased rate of depression in women—particularly such factors as menstrual cycle changes, pregnancy, miscarriage, postpartum period, pre-menopause, and menopause. Many women also face additional stresses such as responsibilities both at work and home, single parenthood, and caring for children and for aging parents.

Age the rarer and more serious first manic episode of bipolar disorder usually occur before age 30; where major depression may begin at any age and the age of onset is fairly evenly distributed throughout adult life, other affective disorders (cyclothymic disorder and dysthymic disorder) usually begin in early in adult life. Depression has high prevalence at each stage of life cycle from adolescence to old age. All age group are vulnerable to some type of depressive difficulties (Turner, 1999).

Social class and marital status, occupation, and education are related to psychiatric illnesses and sometime determine their treatment, depression cuts across all strata of society. The relationship between marital status and spectrum of depressive illnesses is not clear. There is some disputed evidence that married woman tend more toward depression than single women ; single men more than single woman ; and single men

slightly more than married men . The speared, divorced and widowed have slightly higher rates in both sexes (Turner, 1999).

### **3.2.6.2 Social factors:**

Early loss of a significant other Turner (1999) stated that a relationship between the loss of a nurturing person early in life (childhood through early adolescence) and subsequent development of depression was the postulated many year ago.

There is also some evidence linking early loss of apparent by death to severity of depression. Although other investigator have failed to find an association between loss of a parent in childhood, either by death or by separation and adult depression.

Family history of psychiatric illness there is no evidence for a relationship between family history of psychiatric illness and depression but recently some biological indictors make it seem likely that recurrent major depression has a primarily biological basis.

General is risk factor that predisposes to depression: Past family history of depression or other psychiatric disorder, past suicidal attempts, or family history of suicide, substance abuse and recurrent loss of love one. It is increasingly evident as well as genetic, factor contributed to the increased family incidence of psychiatric disorders (Turner, 1999).

Stressful Life Events; a great deal of attention has been paid to the role of stressful life events in the occurrence of depression. Find that loss of parents and of closed

relationship, financial problem and changes in academic or residential situation are specific events that are associated with depression in university students (Turner, 1999).

Social Support; has been identified consistently as an important variable in modifying the impact of life events and favorably influencing the risk for depression. The supportive interactions among people are important is hardly new, the adequate of social support can protect people in crises from a wide variety of pathological states; from low birth weight to death to depression. Social support can reduce the amount of medication required, accelerated and facilitate compliance with prescribed medical regimes.

Social support instead of merely protecting an individual agonist stress, May it self be important in ameliorating depressive symptoms. The absence of Social support can directly causes depressive symptom even in the absence of stressful life events. (Turner, 1999).

### **3.2.7 Theories of depression:**

#### **3.2.7.1 Cognitive behavior theory:**

Beck theory emphasize the role of social interested in determine psychological health. Is widely accepted and practiced, this theory is based on the assumption that a reorganization of one's self – statements will result in a corresponding reorganization of one's behavior.

Beck was trained in psychoanalysis, as we have seen, challenges the notion that depression results from anger turned inward. Instead, he focuses on the content of the depressive's negative thinking and biased interpretation of the events. Beck in 1987 writes about the cognitive triad as a pattern that triggers depression, in the first content of the triad clients hold a negative view of them. They blame the setbacks on personal inadequacies without considering circumstantial explanations, lack the qualities that are essential to bring them happiness. The second components consist of tendency to interpret experiences in the negative manner. The third one gloomy vision and projection about future. They expect their present difficulties to continue and they anticipated only failure in the future (Sadock & Sadock, 1999).

### **3.2.7.2 Psychoanalytic theory:**

Freud's is the leader of psychoanalysis school that was focused on the role of unconscious and development stages and modifying the structure of one's basic character. Psychoanalytic views have passed through several distinct phases, reflecting both clinical experiences in the analysis and psychotherapy of depressed patients and evolution psychoanalytic theory .predisposition to depression is established in infancy and early childhood and result from the interplay between biological vulnerability and disturbance in parent child interactions .

Child can be exposed to stress events in early childhood such as separation or loss of parents, leading to depression. Depression relates to early stage of development oral dependent personalities, who need a constant infusion of external narcissistic supplies to retain a sense of well being (recognition, approval, admiration, demonstration of love). Anger, aggression plays an important part in many, though not all depression. Depressed

persons torture not only themselves but also the significant other their lives, which they blame for having withheld the love, approval, reassurance and admiration due them (Turner, 1999).

### **3.3 Coronary Heart Disease**

#### **3.3.1 Definition of CAD:**

Coronary artery disease is character by abnormal accumulation of lipids substances and fibrous tissue in the vessel wall that lead to change in arterial structure and function and reduction of blood flow to the myocardium (Smeltzer and Bare, 1992).

Coronary artery disease is characterized by the presence of atherosclerosis in the epicardial coronary arteries. Atherosclerotic plaques, the hallmark of atherosclerosis, progressively narrow the coronary artery lumen and impair ante grade myocardial blood flow. The reduction in coronary artery flow may be symptomatic or asymptomatic, may occur with exertion or at rest, and may culminate in a myocardial infarction, depending on obstruction severity and the rapidity of development. Coronary artery disease present with stable angina pectoris, unstable angina pectoris or a myocardial infarction (Rimmerman, 2005).

angina pectoris has many types of angina can define- chest pain precipitated by physical exertion or emotion stress ;increase oxygen demand are placed on the heart muscle , but ability of coronary artery to deliver blood to the muscle impaired because of obstruction



but A significant lesion. Angina is usually referred to as one of two states: stable Angina (which is predictable), unstable Angina (which is less predictable and a sign of a more serious situation) (Suddarth, 1991).

Rimmerman (2005) describes stable Angina when the pattern of its frequency, intensity, ease of provocation or duration does not change over a several-week period. Identification of activities that provoke angina and the amount of sublingual nitroglycerin required to relieve symptoms are helpful indicators of stability. A decrease in exercise tolerance or an increase in the need for nitroglycerin suggests that the angina is progressing in severity or is accelerating.

Simon (2003) state that unstable angina is a much more serious situation and is often an intermediate stage between stable angina and a heart attack, in which an artery leading to the heart (a coronary artery) becomes completely blocked. A patient is usually diagnosed with unstable angina under one or more of the following conditions: pain awakens a patient or occurs during rest, a patient who has never experienced angina has severe or moderate pain during mild exertion (walking two level blocks or climbing one flight of stairs), stable angina has progressed in severity and frequency within a two-month period, and medications are less effective in relieving its pain.

Rimmerman (2005) describes unstable angina as angina pectoris occurs when the pattern of chest pain changes abruptly. Signs of unstable angina are pains at rest, a marked increase in the frequency of attacks, discomfort that occurs with minimal activity, and new-onset angina of incapacitating severity. Unstable angina usually is related to the rupture of an atherosclerotic plaque and the abrupt narrowing or occlusion of a coronary artery, representing a medical emergency.

Bajzer (2002) said that myocardial infarction is defined as death or necrosis of myocardial cells. It is a diagnosis at the end of the spectrum of myocardial ischemia or acute coronary syndromes. Myocardial infarction occurs when myocardial ischemia exceeds a critical threshold and overwhelms myocardial cellular repair mechanisms that are designed to maintain normal operating function and homeostasis. Ischemia at this critical threshold level for an extended time period results in irreversible myocardial cell damage or death. While Brenda (1992) describes myocardium infarction as process of destroyed in region of the heart that is deprived of an adequate blood supply because of a reduced coronary blood flow.

### **3.3.2 Epidemiology of CHD:**

Coronary artery disease is the leading killer in America of both men and women, responsible for nearly 530,000 deaths in 1999. On the positive side, the heart attack mortality rates have declined by over 24% between 1988 and 1999. (Because of the aging population, however, the absolute numbers of deaths fell by only about 6.8%). At this time, half of men and 63% of women who died of heart disease did not have angina or other warning symptoms prior to their fatal attacks (Simon, 2003).

That; nearly 942,000 people is a conservative estimate for the number of people with ACS discharged from hospitals in 2002. Of these, an estimated 543,000 are male and 399,000 are female. This estimate is derived by adding the first listed hospital discharges for myocardial infarction (818,000) to those for unstable angina (124,000) (AHA, 2005).

### **3.3.3 Symptom of coronary heart disease:**

Rimmerman (2005) said that chest discomfort an uncomfortable sensation such as pressure, tightness, heaviness, burning, squeezing, or choking in the retrosternal area. The sensation can radiate to the neck, arms, back, or epigastric, it can also be accompanied by nausea, shortness of breath, diaphoresis, or palpitations; some patients who do not report typical chest discomfort instead describe what is termed an "angina equivalent." The most common angina equivalent is dyspnea; others include discomfort in the jaw, neck, shoulder, arm, epigastrium, or upper back, devoid of any sensation in the chest.

Simon (2003) describe symptom as the following, pain is typically as a crushing weight against the chest, which is accompanied by profuse sweating. The pain may radiate to the left shoulder and arm, the neck or jaw, and even infrequently to the right arm. The arm may be tingling or numb with Nausea, vomiting, and cold sweats, feeling of indigestion or heartburn ,Fainting , great fear of impending death, a phenomena known as angoranimi. Atypical Symptoms that nearly half of patients with heart attack do not have chest pain as the primary symptom. Common atypical symptoms of a heart attack include the following: shortness of breath, cardiac arrest, Dizziness, weakness, and fainting, abdominal pain.

### **3.3.4 Risk factors of CHD:**

Simon (2003) describe risk factors disease as modifiable risk factors, non modifiable Risk Factors Most risk factors for heart disease are related to lifestyle and environmental factors, while Bajzer (2002), describe that Six primary risk factors have

been identified with the development of atherosclerotic coronary artery disease and MI: hyperlipidemia, diabetes mellitus, hypertension, smoking, male gender, and family history of atherosclerotic arterial disease:

#### **3.3.4.1 Non modifiable risk factors:**

Age; Simon, H. in 2003 said that about 85% of people who die from heart disease are over the age of 65.

But Hurst, J. et al in 1974 describe people who have heart disease between 45-51 years in male and  $\geq 55$  in female

Gender; Bajzer, C. in 2002 said that incidence of atherosclerotic vascular disease and MI is higher in men than women in all age groups.

Harvey Simon in 2003 said that Coronary artery disease and heart attacks are much more common in middle-aged men. Women have on average ten to fifteen more years of heart-disease free life than do men but as women age they catch up to men. Women in fact are more likely to have angina than men.

Genetic factors; Simon, H. in 2003 said that Genetics are involved in increasing the likelihood of developing important risk factors (e.g., diabetes and high blood pressure).

Ethnicity; Simon, H. in 2003 said that Of all major ethnic groups, African American women face the highest risk for death from heart disease, Native American men have a

lower risk for heart disease than Caucasian men, and Hispanics have the lowest risk for heart disease of all major American population groups.

#### **3.3.4.2 Modifiable risk factors:**

Simon (2003) describes cholesterol and other lipids. Cholesterol is a white, powdery substance that is found in all animal cells and in animal-based foods (not in plants). In spite of its bad press, cholesterol is an essential nutrient necessary for many functions. When cholesterol levels rise in the blood, they can have dangerous consequences, depending on the type of cholesterol, particularly low-density lipoprotein (LDL) cholesterol. Men with cholesterol levels over 240 mg/dl have a risk that is 2.15 to 3.63 times higher than those whose cholesterol is below 200. Reducing LDL and total cholesterol levels and boosting high density lipoprotein (HDL) levels have improved survival and prevented heart attacks. Only 40% of people with high cholesterol levels actually die of heart disease, however, and experts cannot yet define which people are most at risk from high cholesterol levels. Total cholesterol ideal range less than 200 mg/dl, increased risk 200-239mg/dl, more than 240 mg /dl

Christopher (2002) said that cholesterol is a major component of the atherosclerotic plaque that is associated with MI. An elevated level of total cholesterol is associated with an increased risk of coronary atherosclerosis and MI.

Simon (2003) describe Triglycerides are made up of fatty acid molecules and are the basic chemicals in animal and plant fats. Evidence now suggests that these molecules may be major trouble-makers for the heart. Triglycerides (TG) appear to interact with HDL cholesterol in such a way that HDL levels fall as triglyceride levels rise. Low

HDL is known to be harmful to the heart. The harmful imbalance of high triglycerides with low HDL levels is also associated with obesity (particularly around the abdomen), insulin resistance, and diabetes. Some evidence further suggests that high triglycerides pose other dangers, regardless of cholesterol levels. TG, for example, may be responsible for blood clots that form and block the arteries. High triglyceride levels are also associated with the inflammatory response--the harmful effect of an overactive immune system that can cause considerable damage to cells and tissues, including the arteries. Ideal range of TG less than 250mg /dl.

Palestinian guideline (2004) describe blood pressure is elevate blood pressure, or hypertension, is the most insidious of all risk factors because it is asymptomatic until hypertension is well advanced .the continues high pressure forces the myocardium oxygen demand to exceed the supply . This vicious cycle of pain associated with CAD, reduced blood pressure significant to reduce the risk CV events. Annex (3.2) shown normal reading of blood pressure.

Stangl et al (2002) state that arterial hypertension afflicts up to 20–40% of the adult population in Western industrialized nations. With this degree of endemic prevalence, it represents a political health challenge of the greatest order of magnitude for both genders; hypertension is one of the most serious atherogenic risk factors, hypertension experience a risk of developing CHD that is 3.5 times that of female controls with normal blood pressure.

Obesity and metabolic syndrome; Harvey Simon in 2003 describe obesity is at epidemic levels in all age groups. The effect of obesity on cholesterol levels is complex. Although obesity does not appear to be strongly associated with overall cholesterol levels, among

obese individuals triglyceride levels are usually high while HDL (beneficial cholesterol) levels tend to be low, both risk factors for heart disease. Obesity, in any case, has other effects (hypertension, increase in inflammation) that pose major risks to the heart. Obesity is determined by measurement of body fat, not merely body weight. (Simon, 2003).

Obesity is particularly hazardous when it is one of the components of the metabolic syndrome this syndrome is diagnosed when three of the following are present: abdominal obesity, low HDL cholesterol, high triglyceride levels, high blood pressure, and insulin resistance. Metabolic syndrome is a pre-diabetic condition that is significantly associated with heart disease and higher mortality rates from all causes. A 2002 study estimated that 24% of the population now has this condition. Obesity is highly linked with type 2 diabetes, in any case (Simon, 2003).

Willis, et al (1974) describe obesity is a significant coronary risk factor , since insurance actuarial studies indicate a risk of dying from coronary artery heart disease that directly related to the degree of overweight .

Suddarth (1991) define Obesity as an overabundance of body fat , resulting in body weight 20-30% over the average weight for the person's age , height , sex and body form.

Stangi, et al (2002) said overweight among adults is defined as a body-mass index (BMI=weight in kg divided by square of height in cm) greater than 25 but less than 30, obesity as BMI greater than 30 but less than 40, and severe obesity as over 40. Based on

this definition, there is a rising tendency toward overweight and obesity in the U.S.A. and in a number of other Western industrialized countries.

Sedentary lifestyle and exercise; Stangi, et al (2002) state that Physical inactivity must be considered as an atherogenic risk factor. Physically active persons were 50 to 70% less probable than inactive persons of developing CHD. They provided good evidence that even slight to moderate physical activity among women can achieve favorable preventive effects.

Willis, et al in 1974 stat that person who are physically active all their lives are less likely to develop coronary atherosclerosis than their sedentary life. Excise assists one to control body weight, strength skeletal muscle, alters that blood lipids levels toward a more favorable pattern.

Diabetes and insulin resistance ; diabetes mellitus: is a syndrome characterized by high level sugar in the blood result from insulin secretion or insulin effect or both ( american diabetes associating, 2003).

Simon (2003) concluded that diabetes is risk for the following heart-risk conditions, and the more of these conditions they have, the worse the outlook: high blood pressure (hypertension). Up to 75% of cardiovascular problems in people with diabetes may be due to hypertension, very unhealthy cholesterol and lipid balances (high triglyceride levels and lower high density lipoprotein), blood clotting problems, impaired nerve function (neuropathy), which can also damage the heart. In fact, some experts estimate that the mortality rates from neuropathy-related heart conditions ranges from 15% to 53%. Diabetics with heart disease may have a higher risk for silent ischemia, a



condition in which people have blocked arteries but do not experience the angina, the chest pain that signals heart disease.

Smeltzer and Bare (1992) the relationship of elevated blood glucose and increased evidence of coronary heart disease is substantiated. Hyperglycemia fosters increased platelet aggregation, lead to thrombus formation.

Peripheral artery disease; Simon (2003) said that Peripheral artery disease occurs when atherosclerosis affects the extremities, particularly the feet and legs. The major risk factors for heart disease and stroke are also the most important risk factors for Peripheral artery disease. Although signs of heart disease are detected in only 20% to 40% of patients with Peripheral artery disease after an initial diagnosis, Smoking ; Simon (2003) said that smokers in their thirties and forties have a heart-attack rate that is five times higher than their nonsmoking peers. Cigarette smoking may be directly responsible for at least 20% of all deaths from heart disease, or about 120,000 deaths annually. Smoking cigars may increase the risk of early death from heart disease, although evidence is much stronger for cigarette smoking. Although heavy cigarette smokers are at greatest risk, a 2002 study suggested that people who smoke as few as three standard brand cigarettes a day are at higher risk for blood vessel abnormalities that endanger the heart. Regular exposure to passive smoke is now estimated to increase the risk of heart disease in the nonsmoker by between 25% and 91%, causing more than 30,000 deaths each year.

Smeltzer and Bare (1992) describe of cigarette smoking contributes to the development and severity of CAD in three ways. First , the inhalation of smoke increase blood carbon monoxide level lead to decrease amount of oxygen in the blood so the heart work harder

to produce the same amount of energy , second nicotinic acid in tobacco products triggers the release of catecholamine which causes arterial constriction , third cigarette smoking crease platelets adhesion lead to higher probity to thrombus formation .the individual who successfully ceases to smoke reduces his risk of CHD by 50% within first year of smoking cessation .

Stangi, et al (2002) describe smoking is indisputably an important atherogenic risk factor, especially for peripheral arterial occlusive disease, in which it increases the risk by seven-fold. In addition, smoking exacerbates the risk of coronary vascular disease by at least a factor of two. Tobacco smoke is directly and indirectly atherogenic as a result of many and various mechanisms.

Eating habits; Simon, H. in 2003 said that eating habits can be protective or dangerous to the heart. Although the best diet is not clear for each individual, avoiding saturated fats and trans-fatty acids is recommended for everyone, diet plays an important role in the health of the heart. There is no single diet that suits everyone.

Willis, et al (1974) said that diet rich in total calories, total saturated fats, cholesterol, sugars, and salt is a major coronary risk factor. Population consuming diets reduced in total fats, saturated fats and cholesterol have lower mean serum lead decline mortality rates from premature CAD.

Stress and psychological factors ; Albus, et al (2004) conclude that Psychosocial is risk factors like low socio-economic status, chronic family or work stress, social isolation; negative emotions (e.g., chronic depression or acute anxiety) may contribute significantly to the development and adverse outcome of coronary heart disease.

Simon (2003) said that stress; depression can certainly influence the activity of the heart when it activates the sympathetic nervous system (the automatic part of the nervous system that affects many organs, including the heart) such as heart rhythm abnormalities and heart attacks, in people with heart disease. The effects of mental stress on heart disease are controversial. Increases the severity of heart attack and may even impair a patient's response to medication for heart disease. Although people with heart disease may certainly become depressed. Depression itself may be a true risk factor for heart disease as well as its increased severity may harm the heart, even in people with no early signs of heart disease

Smeltzer and Bare (1992) described; that stress contributed to pathogenesis of coronary heart disease. Stangi, et al (2002) said that evidence has now accumulated for years that psychosocial influences may represent relevant risk factors for the development and progress of CHD. Chronic work related stress is evidently associated with an elevated incidence of cardiac events, and with more pronounced progression of already manifest arteriosclerosis. Psychosocial are significantly associated with cardiovascular disease in both genders.

Family history and genetics; Stangi, et al (2002) concluded that path physiology of coronary artery disease is multifactor. CHD is a complex genetic disease involving multiple genes, environmental influences, as well as gene–gene and gene–environment interactions. Moreover, even individual response and susceptibility to environmental factors demonstrates pronounced genetic backgrounds. Parental history as an indication of hereditary susceptibility must be attributed independent significance as a risk factor.

Christopher (2002) concluded that a family history of premature coronary disease increases an individual's risk of atherosclerosis and MI. The etiology of familial coronary events is multifactor, and includes other elements such as genetic components and acquired general health practices (e.g., smoking and high-fat diets).

Alcohol; Simon, in 2003 describe that strongly noted that heavy drinking harms the heart. And, in fact, cardiovascular disease is the leading cause of death in alcoholics. Evidence suggests that people who consume more than three drinks a day have abnormal blood clotting factors. Heavy alcohol consumption can raise blood pressure and, particularly binge drinking, may also increase the risk for hemorrhagic stroke. Large doses of alcohol can trigger irregular heartbeats, which can be dangerous in people with existing heart disease.

### **3.3.6 Routine tests to determine risk for heart disease:**

1- Electrocardiograms (ECG) Simon, 2003 stated that an (ECG) measures and records the electrical activity of the heart. Between 25% and 50% of people who suffer from angina or have silent ischemia, however, have normal ECG readings. The waves measured by the ECG correspond to the contraction and relaxation pattern of the different parts of the heart. Curtis M, in 2005 describes Electrocardiogram that a resting 12-lead electrocardiogram should be performed on all patients with suspected coronary artery disease. Electrocardiograph results are normal in approximately 50% of patients with chronic stable angina, and can remain normal during an episode of chest discomfort. Importantly, a normal electrocardiogram does not exclude coronary artery disease.

2- Chest Radiograph, Curtis (2005) describe other investigation is the utility of a routine chest radiograph in a patient with chest discomfort has not been established, but it is generally accepted as part of an initial evaluation for coronary artery disease.

3- Exercise Stress Test. Simon, (2003) said that primary value of exercise stress tests is not to detect coronary artery disease in people without symptoms but to help determine the severity and predict the outcome of an existing heart condition.

Rimmerman (2005) describe Stress testing is a means of further assessing for the presence of flow-limiting, functionally significant coronary artery disease. All stress testing techniques include electrocardiogram and blood pressure monitoring. Cardiovascular stress testing takes two forms exercise and pharmacologic administration. The preferred method of cardiovascular stress testing is exercise, utilizing a treadmill or bicycle. Through aerobic exercise, and therefore greater cardiovascular stress. This permits an assessment of an individual's functional capacity, providing prognostic data utilizing the sole parameter of attained metabolic equivalents or oxygen utilization. The most common pharmacologic agents used for non-exercise stress testing are dobutamine, dipyridamole, and adenosine.

4- Computed Tomography Simon (2003) said that Computed tomography scans used alone or with ECG may be used to detect calcium deposits on the arterial walls, strong indicators of current and future coronary artery disease.

5- Rimmerman (2005) describes ultrafast electron-beam computed Tomography used to detect coronary calcium, which is associated with coronary artery disease. The specificity of this test is approximately 70% as many scans are false positives. For this

reason, its utility as a screening test for coronary artery disease is controversial. A high score establishes the diagnosis but does not provide functionally significant data as to the presence or absence of flow-limiting obstructions

6- Rimmerman (2005) describe Echocardiography is recommended for patients with stable angina and physical findings suggesting concomitant valvular heart disease and hypertrophic cardiomyopathy .

7- Simon (2003) stated that angiography is an invasive test. It is used for patients who show strong evidence for severe obstruction on stress and other tests and for patients with acute coronary syndrome.

- A narrow tube is inserted into an artery, usually in the leg or arm, and then threaded up through the body to the coronary arteries.
- A dye is injected into the tube and an x-ray records the flow of dye through the arteries.
- This process provides a map of the coronary circulation, revealing any blocked areas.

Rimmerman (2005) describe Cardiac catheterization is currently the "gold standard" for determining the presence of obstructive coronary artery disease. A more accurate assessment of coronary arterial lumen compromise is by assessing the cross-sectional area of the coronary artery, expressed as a percentage obstruction. This requires the direct visualization of the coronary artery from within the lumen. This limitation has proved the catalyst for the development of intravascular ultrasound.

8- Biologic markers; Simon (2003) state that when heart cells become damaged, they release different enzymes and other molecules into the blood stream. Elevated levels of such markers of heart damage in the blood or urine may help predict a heart attack in patients with severe chest pain and help determine treatment. Some of these factors currently measured include the following:

- Troponins: The proteins cardiac troponin T and I are released when the heart muscle is damaged.
- Creatine kinase: myocardial band (CK-MB) it can elevated when heart muscle is damaged or infarcted.
- Myoglobin: is a protein found in heart muscles. It is released early in the injured heart and
- Christopher (2002) said that Blood tests can be performed to detect evidence of myocardial cell death. Living heart cells contain certain enzymes and proteins (e.g., creatine phosphokinase, troponin, and myoglobin) within cell membranes associated with specialized cellular functions such as contraction. When a heart muscle dies, cellular membranes lose integrity and intracellular enzymes and proteins slowly leak into the bloodstream. These enzymes and proteins can be detected by a blood sample analysis.

Rimmerman (2005) said that other investigation was routine laboratory measurements recommended as a part of the initial evaluation of patients with chronic stable angina should include a serum hemoglobin, fasting glucose, and fasting lipids (total cholesterol, high-density lipoprotein [HDL] cholesterol, triglycerides, and calculated low-density lipoprotein [LDL] cholesterol).

### 3.3.7 Treatment:

1. Simon (2003) said that Aspirin is known as a non steroidal anti-inflammatory agent. It inhibits blood platelets, which are major clotting factors, from sticking together to form a blood clot. Aspirin alone has been reported to reduce risk of death from heart attack by 25% to 50%, at least in men.
  
2. Anticoagulants are drugs that prevent or delay blood coagulation and the formation of blood clots. Heparin has been the standard anticoagulant, but a number of agents are now available that are proving to be better choices in many cases.
  - Heparin referred to as UN fractionated heparin has been the standard for year, used alone or in combination with aspirin for managing unstable angina.
  - Low-Molecular Weight Heparin. Enoxaparin (Lovenox), dalteparin (Fragmin).
  - Warfarin (Coumadin) is an oral anticoagulant, used after a heart attack to prevent another. Warfarin is also proving to be more effective than aspirin for preventing heart attacks in patients with acute coronary syndromes.
  
3. Nitrates have been used in the treatment of angina for over a hundred years. Thereby relaxing the smooth muscles in blood vessels (oral tablet), (ointment or patch), (sublingual tablet or spray), (intravenous).
  
4. Beta-Blockers are useful for preventing angina attacks and reducing high blood pressure. They reduce the oxygen demand of the heart by slowing the heart rate and lowering blood pressure. They are now well known for reducing deaths from heart



disease and from heart surgeries, Angina, heart attack, and even sudden death have occurred in patients who discontinued treatment without gradual withdrawal.

5. Calcium channel blockers reduce heart rate and slightly dilate the blood vessels of the heart, thereby decreasing oxygen demand and increasing oxygen supply. They also reduce blood pressure.
6. Angiotensin converting enzyme inhibitors are important heart protective drugs, particularly for people with diabetes. It reduces risk for heart attack, stroke, complications of diabetes, and death in patients at high risk for heart disease.
7. Statins and Other Cholesterol and Lipid-Lowering Agents standard agents for most people who require LDL-lowering therapy. Bile-acid binding resins or niacin may be considered. (Another LDL-lowering agent).

Rimmerman (2005) concluded that

- Aspirin is the mainstay of ant platelet therapy for patients who have known coronary artery disease or symptoms suggestive of coronary artery disease. Aspirin at 75 mg/d to 325 mg/d reduces the incidence of a myocardial infarction.
- Calcium channel blockers exert some degree of negative isotropic effect, so they should be used cautiously in patients with left ventricular systolic dysfunction.
- Calcium channel blockers, calcium antagonists used for angina control in patients who have ischemic.
- beta-blocker and
- Long-acting nitrate therapy has been given an adequate trial.

8. Surgery; Simon (2003) said that surgery is usually recommended for patients who have unstable angina that does not respond promptly to medical treatment. Severe recurrent episodes of angina those last more than 20 minutes. Severe coronary artery disease (e.g., severe angina, multi-artery involvement, evidence of ischemia), particularly if abnormalities are evident in the left ventricle of the heart, the main pumping chamber.

1. Angioplasty or Bypass there are two effective surgical procedures now available for heart patients:
2. Coronary artery bypasses grafting
3. Percutaneous translational coronary angioplasty (commonly called angioplasty, usually with coronary artery stent placement.
4. Other Procedures: Atherectomy ,Myocardial Laser Revascularization , Enhanced External Counterpulsation

Rimmerman (2005) said that the diagnostic and treatment options for coronary artery disease are changing rapidly. New pharmaceuticals, surgery are being developed and introduced into the treatment .Biologic markers are now used to track coronary artery disease activity at the vascular level

- Percutaneous coronary intervention versus is more effective than medical therapy in relieving angina, but it confers no greater survival benefit.

- Coronary Artery Bypass Grafting versus produces better survival rates compared to medical therapy and it is recommended for symptomatic patients with left main coronary artery disease.

Complication is appear In spite of the invasive nature of this procedure, in general, elective bypass procedures produce better long-term survival rates than angioplasty, particularly in patients with diabetes and multi-vessel blockage. Overall mortality rates after these procedures ranges from 1% to slightly over 2%. The risk for stroke or heart attack after a bypass operation range from 1.3% to 5%. Blood clots may form in the new graft, closing it up or narrowing the treated vessel over time. Therapy with aspirin and other anti-clotting drugs help keep the graft open and working properly. For long-term prevention of closure as well as slowing progression of atherosclerosis, aggressive use of cholesterol-lowering drugs may be more beneficial than the standard anti-clotting drugs (Simon, 2003).

### **3.3.8 Prevention of coronary heart disease: (National Guideline, 1998)**

#### **A. Primary prevention**

1- Estimate absolute risk (the risk of developing CHD, either non fatal event or coronary death over the next 10 years).

2- Modify the patients' lifestyle

3- Modify the patients risk factors via lifestyle change and if necessary drug therapy.

- blood pressure reduction

- blood lipid reduction

4- Screen the person's closest relative for genetically determined dyslipidemia.

## **B. Secondary prevention**

1- Modify the patient's lifestyle

- Stop smoking tobacco
- Make healthy food choices
- Increase physical activity.

2- Modify the patient's risk factors

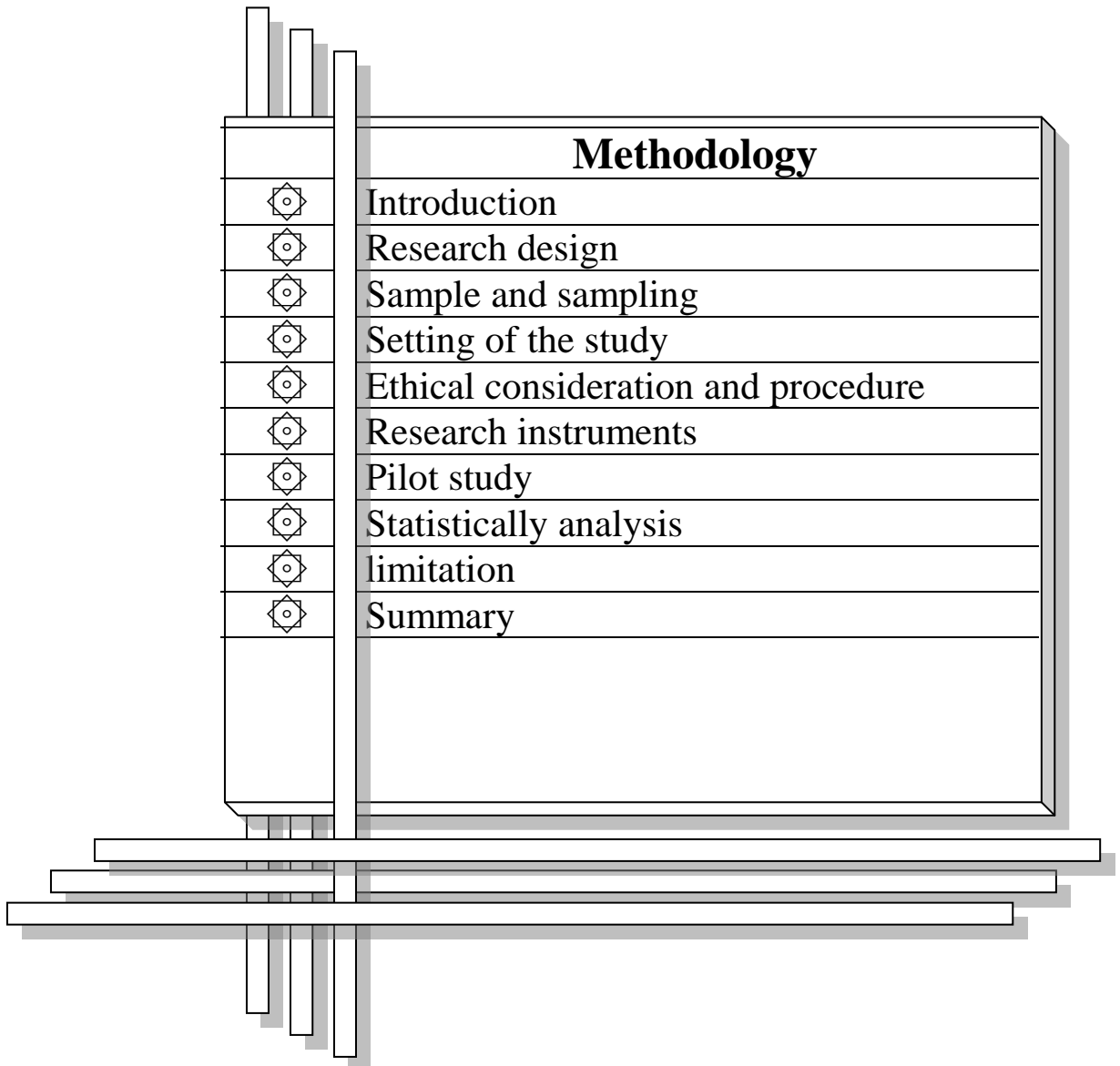
- Reduce weight through healthy diet ,regular physical activity
- Reduce blood pressure by lifestyle measure and use antihypertensive drugs if needed.
- Reduce total plasma cholesterol and LDL by dietary changes and lipid lowering drugs.
- Achieve and maintain good blood glucose control in diabetic patients.
- Reduce the propensity to thrombosis using prophylactic drug such as aspirin and anti coagulants

3- Use other prophylactic drug therapy

- beta blocker
- Angiotens converting enzyme inhibitors

4- Screen the person's closest relative.

# Chapter 4



	<b>Methodology</b>
◊	Introduction
◊	Research design
◊	Sample and sampling
◊	Setting of the study
◊	Ethical consideration and procedure
◊	Research instruments
◊	Pilot study
◊	Statistically analysis
◊	limitation
◊	Summary

## **Methodology**

This chapter deal with steps of implementation according to research plan such as study design, sampling, instruments that used in study, collected data, data entry and analysis and statistics materials.

### **4.2 Study of design**

It is a descriptive cross sectional study conducted at Coronary Care Unit at Al Shifa Hospital – Gaza.

### **4.3 Sample and sampling**

#### **4.3.1 Study population:**

The population of the study consist of a sample of patients from both gender with coronary artery disease either diagnosis or had been diagnosed as coronary artery disease who admitted to coronary care unit in al Shifa hospital.

Number of target population was (1300) patients according to coronary care unit registry book record in 2004 who newly diagnosis or had been diagnosis confirm with coronary heart disease in both sex by physician. And admitted in coronary care unit at al shifa hospital during the period of study.

#### **4.3.2 Sample size:**

Sample size is consist of 150 patients were determined by using EPI-6 program.

Sampling: method chosen by convient sampling method.

#### **4.3.3 Eligibility criteria:**

##### **4.3.3.1 Inclusion criteria:**

- Patients who diagnosed confirm with coronary heart disease (angina or MI or both) by physician.
1. Clinical manifestation such as chest pain lasting at least 20 minutes;
  2. Presence of change of electrocardiogram.
  3. Elevate Peak cardiac enzyme level such as creatinine phosphokinase level especially in MI.
- Routine demographic data including age, gender, education, living arrangements, current partner status, religious, and employment status were collected. Both genders male or female.
  - Cases who readmission or stay more than 3days in coronary care unit.
  - Patients interviewed as soon as were medically stable, on average their MI (range 2–5 days).

##### **4.3.3.2 Exclusion criteria:**

- Patients who have grief events before attack of CHD.

- Patients who have psychiatric disorder.
- Patients who have CHD with congestive heart failure or cardiomyopathy.

#### **4.4 Setting of the study**

This study carried out in coronary care unit at Al Shifa governmental hospital – Gaza City in study carried out in 2004/2005.

#### **4.5 Ethical consideration and procedure**

1. An official letter of approval to conduct the study was obtained from Helsinki committee for facility data collection annex (4.7).
2. Obtain Approval of ministry of health annex (4.8).
3. Explaining the consent form for patients participant on the study include the goals, mechanism, purpose of the study, and the potential benefit and risk to the a subject ,and take agreement for participation in the study annex (4.4).
4. Ethical concept respect for confidently, truth was considered.

#### **4.6 Research instruments**

Research instrument have two parts:

##### **4.6.1 Questionnaire (sociodemographics, economic, medical questions):**



Personal, demographic, educational level, Economic data, medical data ( admissions date, recurrence of admission, risk factor for CHD such as medical history of DM, hypertension, hyperlipidemia, smoking, activity, hereditary, drugs). This part was designed annex (4.5) to use it for face to face interview.

#### **4.6.2 Hopkins Symptom Checklist (HSCL-25):**

The Second part: Hopkins Symptom Checklist

Hopkins Symptom Checklist Have two parts annex (4.6); Anxiety and Depression.

##### **Description of the scale:**

Hopkins Symptoms Checklist (HSCL) is a well-known and widely used screening instrument whose history dates from the 1950s.

The HSCL-25 is a symptom inventory which measures symptoms of anxiety and depression. It consists of 25 items: Part I of the HSCL-25 has 10 items for anxiety symptoms; Part II has 15 items for depression symptoms but used 14 items according to our culture.

The scale for each question includes four categories of response ("Not at all," "A little," "Quite a bit," "Extremely," rated 1 to 4, respectively) annex (4.6) .

The total score is the average of all 24 items 24-96 degree. It has been consistently shown in several populations that the total score is highly correlated with severe

emotional distress of unspecified diagnosis, and the depression score is correlated with major depression as defined by the Diagnostic and Statistical Manual of the American Psychiatric Association, IV Version (DSM-IV).HSCL used in Croatian, Japanese, Laotian, Arabic culture (Afana, 2002)

Translated by Afana (2002);instruments have been validated in various countries and cultures,14,16 The cut off point score of HSCL-25 used in the study was 1.75, client who scored >1.75 were considered as cases with mental disorder . In our study used Arabic translated version which indicate that the split half reliability of the scale was  $r=0.90$ . The internal consistency of the scale, calculated using chronbach's alpha was  $\alpha=0.95$ .

#### **4.7 Pilot Study**

A pilot study has been conducted on 50 patients were included for the study sample was (25 male, 25 female) which by convient sampling method. As a result of the pilot study, scale is clear and validity and reliability of research instrument that will implied on data collection for study sample.

##### **4.7.1. Hopkins Symptom Checklist scale: part 1 (anxiety)**

#### **1. The Validity of the scale in the Palestinian society:**

##### **A. Internal consistency validity:**

The validity of internal consistency was used by finding out the correlation coefficient between the degree of each item and the total degree of its domain as shown in table (4.1).

**Table 4.1: internal consistency of Hopkins scale (anxiety) in the Palestinian society**

No.	Items	Pearson Correlation	Sig. level
1.	Suddenly scared for no reason.	0.508	Sig. at 0.01
2.	Feeling fearful	0.660	Sig. at 0.01
3.	Faintness, dizziness or weakness.	0.751	Sig. at 0.01
4.	Nervousness or shakiness inside	0.533	Sig. at 0.01
5.	Heart pounding or racing.	0.535	Sig. at 0.01
6.	Trembling.	0.548	Sig. at 0.01
7.	Feeling tense or keyed up.	0.680	Sig. at 0.01
8.	Headaches.	0.644	Sig. at 0.01
9.	Spells of terror or panic.	0.689	Sig. at 0.01
10.	Feeling restless, cannot sit still.	0.694	Sig. at 0.01

r table value at df 50 and 0.05 level = 0.273

r table value at df 50 and 0.01 level = 0.354

Also the internal consistency was conducted for the questionnaire by finding out the

correlation coefficient between the degree of each domain and the total degree of the whole questionnaire as shown in (Table 4.1).

## **B. Reliability**

### **1. Cronbach alpha:**

The Cronbach Alpha was used to detect the reliability of the instrument giving a score of (0.827).

### **2. Split half:**

Person correlation was counted between the scores of odd items and the scores of even items giving a value of (0.822). This value was corrected by using Spearman Brown formula, which was:

$$r = 2r / 1 + r = 0.902$$

## **Hopkins Symptom Checklist scale: part 2(depression)**

### **A. The Validity of the scale in the Palestinian society:**

#### **1. Internal consistency validity:**

The validity of internal consistency was used by finding out the correlation coefficient between the degree of each item and the total degree of its domain as shown in Table (4.2).

**Table 4.2: internal consistency for Hopkins scale (depression) in the Palestinian society.**

No.	Items	Pearson Correlation	Sig. level
11.	feeling low in energy ,slowed down	0.274	Sig. at 0.05
12.	blaming your self for things	0.309	Sig. at 0.05
13.	crying easy	0.455	Sig. at 0.01
14.	poor appetite	0.456	Sig. at 0.01
15.	difficult falling sleep and sleeping	0.335	Sig. at 0.05
16.	feeling hopeless about the future	0.785	Sig. at 0.01
17.	feeling blue	0.765	Sig. at 0.01
18.	feeling lonely	0.555	Sig. at 0.01
19.	thought of ending your life	0.549	Sig. at 0.01
20.	feeling of being trapped or caught	0.533	Sig. at 0.01
21.	worrying too much about things	0.714	Sig. at 0.01
22.	feeling no interest in things	0.635	Sig. at 0.01
23.	feeling everything is an effort	0.298	Sig. at 0.05
24.	feeling worthlessness	0.580	Sig. at 0.01

r table value at df 50 and 0.05 level = 0.273

r table value at df 5 0and 0.01 level = 0.354.

## **B. Reliability**

### **1. Cronbach's alpha:**

The Cronbach Alpha was used to detect the reliability of the instrument giving a score of (0.782).

### **2. Split half:**

Person correlation was counted between the scores of odd items and the scores of even items giving a value of (0.528) this value was corrected by using Spearman Brown formula, which was:

$$r = 2r / 1 + r = (0.691)$$

## **4.8. Data collection**

In this study, the 150 subject was interview by the investigator during coronary care unit at al shifa hospital visit, each subject received the questioner by interview that reading to subject demographic data, sociecomemic data form, anxiety, and Depression questioner. The written instruction make up the consent form and include who the investigator is, the purpose of the study, and the potential benefit and risk to a subject. Each interview was done 30- 35 minutes, 3- 4 interviews per day done, total period 40- 50 days according to ethical and research methods.

#### **4.9. Statistically analysis**

Data were analyzed by using statistical package for social sciences SPSS program, after data collected then complete entry then analysis

1. Frequency, Mean, Percentage, chi square for study prevalence of risk factors and prevalence of anxiety and depression.
2. One Way ANOVA (2x1) for study anxiety, depression with relationship with age group or monthly income or level of education.
3. t test for study the relationship between anxiety , depression with sex or ammission number or beta blocker .
4. Pearson coefficient for internal consistence
5. Spearman coefficient, Cronbach alpha coefficient , Split half for validity of scale
6. Scheffe test for difference between Mean and detect direction.

#### **4.10 Limitation of study**

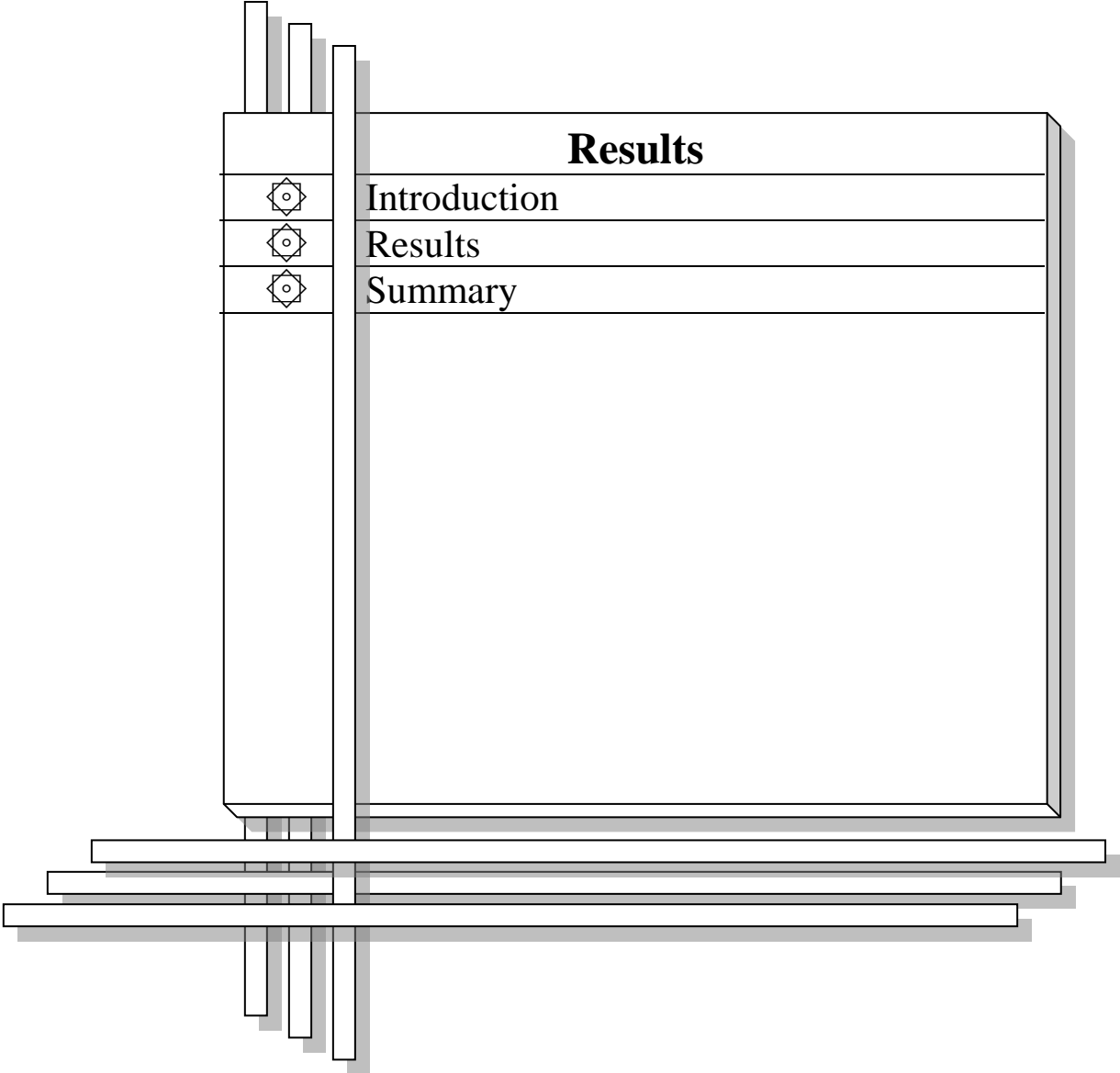
- Lack of resources.
- Time limitation.
- Sampling is non probability method sample so generalization is matter.
- Variables (depression, anxiety) measure subjectively.
- Political situation (road closed by Israel occupied prevent to reach to south Gaza to collect data in other hospital. So study operated on coronary heart disease patients from Al-Shifa Hospital in Gaza city.

#### **4.11 Summary**

In this chapter was clear that study design was a descriptive cross sectional, using convenient sampling method, sample size detect by sing EPI-6 program, and implemented research tools during pilot study, it was valid and reliable that allow to collected data then entry and analysis , limitation that faced the study .



# Chapter 5



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## Chapter 5

### The Results

#### 5.1 Introduction

In this chapter the researcher clarified the main result of the study after data collection and analysis by using statistical tools of sample of 150 patients. The researcher used SPSS program for data entry and analysis and other statistical test (chapter 4) and used Questionnaire (social, economic, health question), Hopkins Symptom Checklist (HSCL-25) to reach to following results:

#### 5.2 Characteristics of demographic data

Table (5.3) shows the characteristics of total population according to sex group, female 77 patients represent (51.33%); male 73 patients represent (48.67%).

**Table 5.3: Distribution of the sample according to sex**

<b>Gender</b>	<b>No.</b>	<b>Percent</b>
Male	73	48.67
Female	77	51.33
<b>Total</b>	<b>150</b>	<b>100</b>

Table (5.4) shown age group the highest percentage among study population was noticed among age group 60years and more is 71 patients (47.33%), age group 50-59 years was 47 patients (31.33%), 40-49 years was 25 patients represents (16.67% ), less than 40 years was 7 patients ( 4.67%).

**Table 5.4: Distribution the sample according to age group**

Age	No	Percent
< 40 year	7	4.67
40-49 years	25	16.67
50-59 years	47	31.33
> 60 years	71	47.33
<b>Total</b>	<b>150</b>	<b>100</b>

Place of residence, table (5.5) shown that most sample was from Gaza province was 106 patients (70.67%) followed by North Gaza was 26 patients (17.33%) and Middle Zone is 17 patients (11.33%) finally Khan Younis was 1 patients (0.67%).70.6 % of the sample from Gaza because Al Shifa hospital located in Gaza city.

**Table 5.5: Distribution of the sample according to place of residence**

Address	No.	Percent
North Gaza	26	17.33
Gaza	106	70.67
Middle area	17	11.33
Khan Younes	1	0.67
<b>Total</b>	<b>150</b>	<b>100</b>

As see in table (5.6), distribution of occupation among population show females subjects were housewives 73 patients (48.67%), unemployed (Without) was 38 patients represent (25.33%), followed by employee was 21 patients (14%), merchant was 7 patients (4.67%), simple worker was 6 patients (4%) and skilled worker was 5 patients (3.33%).

**Table 5.6: Distribution of occupation among study population**

<b>Job</b>	<b>No.</b>	<b>Percent</b>
House wife	73	48.67
Without	38	25.33
Simple worker	6	4.00
Skilled worker	5	3.33
Employee	21	14.00
Merchant	7	4.67
<b>Total</b>	<b>150</b>	<b>100</b>

As shown in table (5.7) distribution of the sample according the martial status was single 2 patients (1.3%), married was 112 patients (74.67%) ad widower was 36 patients (24%).

**Table 5.7: Distribution the sample according the martial status**

<b>M. status</b>	<b>Frequency</b>	<b>Percent</b>
Single	2	1.33
Married	112	74.67
Widower	36	24
<b>Total</b>	<b>150</b>	<b>100</b>

Education level shown in table (5.8) was Low education level is the largest among study sample, illiterate was 47 patients (31.33%), Elementary was 34 patients (22.67%), primary is 21 patients (14%) and secondary is 26 patients (17.33%), diploma is 8 patients (5.33%), university education level is noticed 6 patients (4%), and higher study is 8 patients (5.33%).

**Table 5.8: Distribution of education level among study sample**

Education	Frequency	Percent
Illiterate	47	31.33
Elementary	34	22.67
Primary	21	14.00
Secondary	26	17.33
Diploma	8	5.33
University	6	4.00
Higher Study	8	5.33
<b>Total</b>	<b>150</b>	<b>100</b>

Table (5.9); show distribution of income among study sample was less than 1501 Shekel is the highest range is 126 patients (84%), from 1501 to 3000 shekel is 19 patients (12.67%) and more than 3001 shekel is 5 patients (3.33%).

**Table 5.9: Distribution the study sample according to family monthly income**

Income	Frequency	Percent
< 1500 NS	126	84.00
1501– 3000 NS	19	12.67
> 3001 NS	5	3.33
<b>Total</b>	<b>150</b>	<b>100</b>

## 5.3 Results

### 5.3.1 Prevalence of associated factors for coronary artery disease:

#### 5.3.1.1 Physical Inactivity:

As shown in table (5.10) the most common risk factors identified is lack of physical exercise, high prevalence of physical inactivity is noticed among study sample 129 patients (86%) it is the highest one of risk factor for attack of coronary heart disease. a physical active was 21 patients (14%) .

**Table 5.10: Distribution physical activity among study population**

Variable	Frequency	Percent
Physical activity	21	14.00
Physical inactivity	129	86.00
<b>Total</b>	<b>150</b>	<b>100</b>

#### 5.3.1.2 Hypertension:

Table (5.11) shown the prevalence of hypertension was 71patients who have history of hypertension which represented (47.33%), 79patients had negative history of hypertension represented.

**Table 5.11: Distribution of hypertension among population sample**

<b>Hypertension</b>	<b>Frequency</b>	<b>Percent</b>
Yes	71	47.33
No	79	52.67
<b>Total</b>	<b>150</b>	<b>100</b>

### **5.3.1.3 Obesity:**

Body Mass Index is just one of many factors related to developing coronary artery disease, high prevalence of obesity among population sample. High prevalence of obesity is an indicator of the health status of the adult population (table 5.12) shown BMI more than 30kg/m<sup>2</sup> was 61 patients (40.67%), less than 30 was 89 patients (59%).

**Table 5.12: Distribution of the sample according the BMI**

<b>BMI</b>	<b>Frequency</b>	<b>Percent</b>
< 30	89	59.33
+30	61	40.67
<b>Total</b>	<b>150</b>	<b>100</b>

### **5.3.1.4 Diabetes Mellitus:**

Table (5.13) shown distribution of the sample according of the D.M, DM was high prevalence 61 patients (40.67%). Patients had negative history of DM was 89 patients (59.33%).

**Table 5.13: Distribution of the sample according of the D.M**

<b>Diabetes Mellitus</b>	<b>Frequency</b>	<b>Percent</b>
Yes	61	40.67
No	89	59.33
<b>Total</b>	<b>150</b>	<b>100</b>

Table (5.14) shown that distribution of the sample according to the type of D.M type II is the largest was 42 patients (28%); type 1 was 19 patients (16.67%).

**Table 5.14: Distribution of the sample according to the type of diabetes mellitus**

<b>Type</b>	<b>Frequency</b>	<b>Percent</b>
Type I	19	12.67
Type II	42	28.0
<b>Total</b>	<b>61</b>	<b>40.67</b>

#### **5.3.1.5 Family history of coronary artery disease:**

Table (5.15) shown that positive family history of coronary artery disease was 46 patients (30.67%) and negative family history of coronary artery disease was 104 patients (69.33%).



**Table 5.15: Family history of CAD among sample**

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
Positive family history	46	30.67
Negative family history	104	69.33
<b>Total</b>	<b>150</b>	<b>100</b>

### **5.3.1.6 Hyperlipidemia:**

#### **1- Triglyceride level**

as shown in table (5.16), divided the range of triglyceride level to two levels; ideal range less than 250mg/dl and high range more than 250mg/dl increase risk, prevalence of TG among sample was 41 patients (27.3%) and less than 250 mg/dl is 109 patients (72.6%).

**Tale 5.16: Distribution of Triglyceride level among sample**

<b>Triglyceride</b>	<b>Frequency</b>	<b>Percent</b>
Low < 250 mg/dl	109	72.6
High > 250 mg/dl	41	27.3
<b>Total</b>	<b>150</b>	<b>100</b>

#### **2- Cholesterol level**

Total cholesterol level has been linked to the development of CAD event with continues and graded relation, cholesterol normal (< 200 mg/dl), borderline (200-239 mg/dl) and

high (>240 mg/dl). Table (5.17) show that desired group cholesterol (normal) is 81 patients (54%), borderline was is 40 patients (26.67%) and high risk is 29 patients (19.33%).

**Table 5.17: Distribution of cholesterol level among sample**

<b>Cholesterol</b>	<b>Frequency</b>	<b>Percent</b>
Desired < 200 mg/dl	81	54.00
Border line high risk 200-239 mg/dl	40	26.67
High risk >240 mg/dl	29	19.33
<b>Total</b>	<b>150</b>	<b>100</b>

### 5.3.1.7 Smoking:

#### 1- Cigarette smoking:

Table (5.18) shown that current smoker is 34 patients (22.67%), former smoker is 24 patients (16%), never smoker is 92 patients (61.33%).

**Table 5.18: Cigarette smoking among sample**

<b>Cigarette Smoking</b>	<b>Frequency</b>	<b>Percent</b>
Current smoker	34	22.67
Former smoking	24	16.00
Never smoking	92	61.33
<b>Total</b>	<b>150</b>	<b>100</b>

## 2- Happily bubble smoker

Although smoker is very dangerous risk factor for attack of CAD but happily bubble smoker is reflect negative relationship with development CAD , table (5.19) shown was who not smoker was 142 patients ( 94.67%) but smoker is 8 patients (5.33%).

**Table 5.19: Distribution the sample according the smoking happily bubble**

Happily bubble	Frequency	Percent
Yes	8	5.33
No	142	94.67
<b>Total</b>	<b>150</b>	<b>100</b>

### 5.3.2 The prevalence of anxiety, depression, among coronary artery disease patients:

Table (5.20 ) show total of prevalence anxiety and depression among CAD, total score different, with same cut point, 99 subjects have total anxiety and depression with 66% from sample, and subjects haven't ( $> 1.75$ ) anxiety and depression was 51subjects (34%).

**Table 5.20: Prevalence of anxiety and depression among the sample**

Total scores of Hopkins's scale	Frequency	Percent
Non cases	51	34.00
Cases	99	66.00
<b>Total</b>	<b>150</b>	<b>100</b>

Table (5.21) reveals the prevalence of anxiety among CAD, by calculate cut point was 1.75 are considered symptomatic, so from (table 23.5) more than 1.75 was 97 subjects from sample have anxiety (64.67%) but 53 subjects haven't ( $< 1.75$ ) anxiety (35.33%)

**Table 5.21: Prevalence of anxiety among sample**

<b>Anxiety</b>	<b>Frequency</b>	<b>Percent</b>
Non cases	53	35.33
Cases	97	64.67
<b>Total</b>	<b>150</b>	<b>100</b>

Table (5.22) shown the prevalence of depression among CAD, by calculate cut point was 1.75 are considered symptomatic, more than 1.75 was 97 subjects from sample have depression (64.67%) but 53 subjects less than 1.75 haven't depression (35.33%).

**Table 5.22: Prevalence of depression among sample**

<b>Depression</b>	<b>Frequency</b>	<b>Percent</b>
Non cases	53	35.33
Cases	97	64.67
<b>Total</b>	<b>150</b>	<b>100</b>

**5.3.2.1 Are there relationship between the prevalence of anxiety, depression and sex (male, female)?**

"t" test were used, table (5.23) shows;

**Table 5.23: Relationship between anxiety, depression and sex at level ( $\alpha \leq 0.05$ )  
(No., Mean, std. Deviation, t. value, sig. value, and sig. Level)**

	Gender	No.	Mean	Std. Deviation	t	P value
<b>Total</b>	Male	73	43.466	9.904	5.424	0.000
	Female	77	52.065	9.514		
<b>Anxiety</b>	Male	73	17.904	5.215	5.329	0.000
	Female	77	22.351	5.005		
<b>Depression</b>	Male	73	25.562	5.909	4.313	0.000
	Female	77	29.562	5.880		

"t" standard table at sig. (0.05) and df (148) = 1.96.

"t" standard table at sig. (0.01) and df (148) = 2.58.

Table (5.24) show that 41subjects (56.16%)from male haven't anxiety by calculate cut point less than 1.75 is not have anxiety , 32subjects from male have anxiety (43.84%) when cut point more than 1.75, female high prevalence of anxiety was 97 subjects (64.67%) have anxiety.

38 subjects (52.06%) from male haven't depression when cut point less than 1.75 is not have depression , 35subjects from male have depression (47.95%) when cut point more

than 1.75, female high prevalence of anxiety was 97 subjects (64.67%) have depression.

Also table (5.24) show prevalence of total (anxiety, depression) among sample, male has both anxiety and depression 43.84%, female has both anxiety and depression was 87.01%.

**Table 5.24: Prevalence of anxiety, depression and total (anxiety and depression) according to gender (No. percent)**

Total	male		female		Total	
	No.	Percent	No.	Percent	No.	Percent
Non cases	41	56.16	10	12.99	51	34.00
Cases	32	43.84	67	87.01	99	66.00
<b>Total</b>	<b>73</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>150</b>	<b>100</b>
Anxiety	No.	Percent	No.	Percent	No.	Percent
Non cases	41	56.16	12	15.58	53	35.33
Cases	32	43.84	65	84.42	97	64.67
<b>Total</b>	<b>73</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>150</b>	<b>100</b>
Depression	No.	Percent	No.	Percent	No.	Percent
Non cases	38	52.06	15	19.48	53	35.33
Cases	35	47.95	62	80.52	97	64.67
<b>Total</b>	<b>73</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>150</b>	<b>100</b>

Tables' results were: "t" calculate is more than standard "t" in (Hopkins scale) that indicate

- Statistically significant association between anxiety and gender was in female high prevalence from male.
- Statistically significant association between depression and gender was in female high prevalence from male

- Total (anxiety, depression) was high prevalence in female.

### 5.3.2.2 Are there any statistical significant differences at level ( $\alpha \leq 0.05$ ) between prevalence of anxiety, depression referred to age group?

The researcher used One Way ANOVA test, table (5.25) shows the prevalence of anxiety, depression among sample according to age group (<40y, 40-49y, 50-59y, > 60y), table (5.25) shown "f" calculate less than "f" standard (Hopkins scale). Means there no statistically significant relationship between prevalence of anxiety, depression and age group.

**Table 5.25: Differences between anxiety, depression and age group (Variance source, sum of squares, df, mean square, f value, sig. Value, sig. level)**

	Age	Sum of Squares	df	Mean Square	f	P value	Sig. Level
<b>Total</b>	Between Groups	612.00	3	204.000	1.850	0.141	Not sig.
	Within Groups	16099.84	146	110.273			
	<b>Total</b>	<b>16711.84</b>	<b>149</b>				
<b>Anxiety</b>	Between Groups	89.00	3	29.667	0.960	0.414	Not sig.
	Within Groups	4513.77	146	30.916			
	<b>Total</b>	<b>4602.77</b>	<b>149</b>				
<b>Depression</b>	Between Groups	240.43	3	80.143	2.109	0.102	Not sig.
	Within Groups	5547.46	146	37.996			
	<b>Total</b>	<b>5787.89</b>	<b>149</b>				

“F” standard table at sig. (0.05) and df (3, 146) = 2.67

“F” standard table at sig. (0.05) and df (3, 146) = 3.91

**5.3.2.3 Are there differences at level ( $\alpha \leq 0.05$ ) between anxiety, depression, and total degree referred to martial status?**

One Way ANOVA test was used; table (5.26) has shown the prevalence of anxiety, depression among sample according of martial status. Calculate "f" more than "f" standard that means it was statistically significant between anxiety, depression and martial status.

**Table 5.26: Differences between anxiety, depression and martial status (Variance source, sum of squares, df, mean square, f value, sig. Value, sig. level)**

	<b>M .status</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>f</b>	<b>Sig. Level.</b>
<b>Total</b>	Between Groups	1154.65	2	577.327	5.455	0.005
	Within Groups	15557.19	147	105.831		
	<b>Total</b>	<b>16711.84</b>	<b>149</b>			
<b>Anxiety</b>	Between Groups	230.22	2	115.109	3.870	0.023
	Within Groups	4372.56	147	29.745		
	<b>Total</b>	<b>4602.77</b>	<b>149</b>			
<b>Depression</b>	Between Groups	383.93	2	19.965	5.222	0.006
	Within Groups	5403.96	147	36.762		
	<b>Total</b>	<b>5787.89</b>	<b>149</b>			

“f” standard table at sig. (0.05) and df (2, 147) = 3.06

“f” standard table at sig. (0.05) and df (2, 147) = 4.75

the following tables explain the differences between prevalence of anxiety, depression and total and martial status (single, married, widower). Scheffe test were used.



Table (5.27) has shown there statistically significant between prevalence of anxiety, depression and total and widower group. Other group haven't clear relationship.

**Table 5.27: Differences of "Mean" between martial status (Single, Married, Widower) in Total (anxiety, depression) scale**

<b>Martial status</b>	Single M=51.000	Married M=46.268	Widower M=52.722
Single M = 51.000	-	-	-
Married M = 46.268	4.732	-	-
Widower M = 52.722	1.722	*6.454	-

\*Sig. Level (0.01)

Table (5.28) shown that "Mean" different between married group and widower group were high among widower group that means the prevalence of anxiety is high among widower more than married.

**Table 5.28: Differences of "Mean" between martial status (Single, Married, Widower) in anxiety scale**

<b>Martial status</b>	Single M=19.000	Married M=19.500	Widower M=22.389
Single M=19.000	-	-	-
Married M=19.500	0.500	-	-
Widower M=22.389	3.389	*2.889	-

\*Sig. Level (0.05)

Table (5.29) shown the prevalence of depression between married and widower. The prevalence of depression was high among widower group more than married, other group the relationship isn't clear.

**Table 5.29: Differences of "Mean" between martial status (Single, Married, Widower) depression part scale**

<b>Martial status</b>	Single M=32.000	Married M=26.768	Widower M=30.333
Single M=32.000	-	-	-
Married M=26.768	5.232	-	-
Widower M=30.333	1.667	*3.565	-

\*Sig. Level (0.01)

**5.3.2.4 Are there difference between (anxiety, depression, and total degree) and monthly income at level ( $\alpha \leq 0.05$ )?**

One Way ANOVA test were used table (5.30) shows the prevalence of anxiety, depression among sample according of monthly income. By Calculate "f" was more than "f" standard that means it was statistically significant between anxiety, depression and monthly income.

From the following tables which explain the relationship between anxiety depression and monthly income(less than 1500 NS, 1500-3000NS, more than 3000 NS) the researcher used scheffe test

**Table 5.30: Difference between anxiety, depression and monthly income (Variance source, sum of squares, df, mean square, f value, sig. Value, sig. level)**

	Monthly income	Sum of Squares	df	Mean Square	f	Sig. Level
<b>Total</b>	Between Groups	1352.66	2	676.332	6.473	0.002
	Within Groups	15359.18	147	104.484		
	<b>Total</b>	<b>16711.84</b>	<b>149</b>			
<b>Anxiety</b>	Between Groups	246.20	2	123.100	4.154	0.018
	Within Groups	4356.57	147	29.637		
	<b>Total</b>	<b>4602.77</b>	<b>149</b>			
<b>Depression</b>	Between Groups	480.80	2	240.401	6.659	0.002
	Within Groups	5307.09	147	36.103		
	<b>Total</b>	<b>5787.89</b>	<b>149</b>			

“f” standard table at sig. (0.05) and df (2, 147) = 3.06

“f” standard table at sig. (0.05) and df (2, 147) = 4.75

From table (5.31); we conclude that there statistically significant relationship between prevalence of anxiety and income. Was high prevalence of anxiety among less than 1500NS group more than 1500-3000 NS. other group haven't clear relationship.

**Table 5.31: Differences of "Mean" between monthly income groups (less than 1500 NS, 1500-3000NS, more than 3000 NS) in anxiety scale**

<b>Monthly income</b>	Less than 1500 NS M=20.730	from 1500 to 3000 NS M=16.947	more than 3000 NS M=18.8
less than 1500 NS; M=20.730	-	-	-
from 1500 to 3000 NS; M=16.947	*3.783	-	-
More than 3000 NS; M=18.8	1.930	1.853	-

\*Sig. Level (0.05)

From table (5.32) we concluded there statistically significant relationship between prevalence of depression and income (less than 1500 NS, 1500-3000NS, more than 3000 NS) was high prevalence of depression among less than 1500NS group more than 1500-3000 NS. Other groups haven't clear relationship.

**Table 5.32: Differences of "Mean" between monthly income groups (less than 1500 NS, 1500-3000NS, more than 3000 NS) in depression scale**

<b>Monthly income</b>	Less than 1500 NS M=28.460	from 1500 to 3000 NS M=24.105	More than 3000 NS M=22.000
less than 1500 NS; M=28.460	-	-	-
from 1500 to 3000 NS; M=24.105	*4.355	-	-
More than 3000 NS; M=22.000	6.460	2.105	-

\*Sig. Level (0.01)

From table (5.33); we concluded there statistically significant relationship between prevalence of anxiety, depression and income, prevalence of anxiety, depression was high among less than 1500NS group more than 1500-3000 NS group. Other groups haven't clear relationship.

**Table 5.33: Differences of "Mean" between monthly income groups (less than 1500 NS, 1500-3000NS, more than 3000 NS) in total (anxiety, depression) scale**

<b>Monthly income</b>	<b>Less than 1500 NS M=49.190</b>	<b>from 1500 to 3000 NS M=41.053</b>	<b>more than 3000 NS M=40.800</b>
Less than 1500 NS; M=49.190	-	-	-
From 1500 to 3000 NS; M=41.053	*8.138	-	-
More than 3000 NS; M=40.800	8.390	0.253	-

\*Sig. Level (0.01)

**5.3.2.5 Are difference in (anxiety, depression, and total degree) and educational level at level ( $\alpha \leq 0.05$ )?**

One Way ANOVA style test were used table (5.34) showed that prevalence of anxiety, depression among sample according to level of education, the result was "f" calculate less than "f" standard (Hopkins scale), that means there statistically significant relationship between prevalence of total (anxiety, depression) and depression and level of education. There no statistically significant relationship between prevalence of anxiety and level of education.

**Table 5.34: Relationship between prevalence of anxiety, depression and total and education level**

(Variance source, sum of squares, df, mean square, f value, sig. Value, sig. level)

	Education level	Sum of Squares	df	Mean Square	f	Sig. Level
<b>Total</b>	Between Groups	1624.49	6	270.748	2.566	0.022
	Within Groups	15087.35	143	105.506		
	<b>Total</b>	<b>16711.84</b>	<b>149</b>			
<b>Anxiety</b>	Between Groups	336.48	6	56.081	1.880	0.088
	Within Groups	4266.29	143	29.834		
	<b>Total</b>	<b>4602.77</b>	<b>149</b>			
<b>Depression</b>	Between Groups	613.03	6	102.171	2.823	0.013
	Within Groups	5174.87	143	36.188		
	<b>Total</b>	<b>5787.89</b>	<b>149</b>			

“F” standard table at sig. (0.05) and df (2, 147) = 3.06

“f” standard table at sig. (0.05) and df (2, 147) = 4.75

To explain the relationship between prevalence of anxiety, depression and total and level of education. scheffe test were used in the following tables.

Table (5.35); show's that prevalence of depression is higher when level of education is low, prevalence and depression between illiterate people more than secondary, diploma and university levels. Prevalence of depression in primary level more than university level. High depression level between primary comparisons with diploma and other level is not differences.

**Table 5.35: Differences of "Mean" between level of education in depression scale**

	Illiterate M= 29.149	Primary M= 29.524	Element M= 28.265	Second M= 26.077	Diploma M= 22.500	University M= 23.333	H. study M= 25.625
Illiterate M=29.149	-	-	-	-	-	-	-
Primary M=29.524	0.375	-	-	-	-	-	-
Elementary M=28.265	0.884	1.259	-	-	-	-	-
Secondary M=26.077	*3.072	3.447	2.188	-	-	-	-
Diploma M=22.500	*6.649	*7.024	*5.765	3.577	-	-	-
University M=23.333	*5.816	*6.190	4.931	2.744	0.833	-	-
Higher study M=25.625	3.524	3.899	2.640	0.452	3.125	2.292	-

\*Sig. Level (0.05)

Table (5.36) show that prevalence of total (anxiety and depression) is higher when level of education was low, prevalence of total (anxiety and depression) between illiterate people more than secondary, diploma and university level. Prevalence of total (anxiety and depression) in primary level more than university level. High total (anxiety and depression) level between primary comparisons with diploma and other level is not differences.

**Table 5.36: Differences of "Mean" between level of education in total (anxiety and depression) scale**

	Illiterate M= 50.532	Primary M= 49.381	element M= 49.088	second M= 46.038	diploma M= 41.250	University M= 38.000	H. study M= 43.250
Illiterate M=50.532	-	-	-	-	-	-	-
Primary M=49.381	1.151	-	-	-	-	-	-
Elementary M=49.088	1.444	0.293	-	-	-	-	-
Secondary M=46.038	4.493	3.342	3.050	-	-	-	-
Diploma M=41.250	*9.282	8.131	7.838	4.788	-	-	-
University M=38.000	*12.532	*11.381	*11.088	8.038	3.250	-	-
Higher study M=43.250	7.282	6.131	5.838	2.788	2.000	5.250	-

\*Sig. Level (0.05)



**5.3.2.6 Are there difference at level ( $\alpha \leq 0.05$ ) between (anxiety, depression, total degree) and Beta blocker taken (yes, no)?**

T test were used. Table (5.37) shows: calculate "t" in the table (5.37) less than standard "t" that means there no statically significant relationship between Beta blocker taken and prevalence of anxiety , not statically significant relationship between Beta blocker taken and prevalence of depression and prevalence of both total(anxiety and depression).

**Table 5.37: Relationship between anxiety, depression and taken Beta blocker (No., mean, std. Deviation, T. value, sig. value, and sig. Level)**

	Beta blocker	No	Mean	Std. Deviation	t	Sig. (2-tailed)	Sig. Level
<b>Total</b>	No	62	50.468	10.914	2.558	0.012	Sig. at 0.05
	Yes	88	46.057	10.022			
<b>Anxiety</b>	No	62	21.145	5.875	1.786	0.076	Not sig.
	Yes	88	19.511	5.252			
<b>Depression</b>	No	62	26.545	6.272	2.746	0.007	Sig. At 0.01
	Yes	88	26.545	5.977			

“t’ standard table at sig. (0.05) and df (148) = 1.96

“t’ standard table at sig. (0.01) and df (148) = 2.58

**5.3.2.7 Are there a statistical significant differences at level ( $\alpha \leq 0.05$ ) in (anxiety, depression, and total degree) referred to the number of admission time (one time, more than one time)?**

T test were used. Table (5.38) shown that calculated "t" in the table less than "t" standard "t" that means there no statically significant relationship between number of admission time and prevalence of anxiety. There no statically significant relationship between number of admission time and prevalence of depression and There no statically significant relationship between number of admission time and prevalence of total (anxiety and depression).

**Table 5.38: Relationship between anxiety, depression and currency of admission**

**Time Number (No., mean, std. Deviation, T. value, sig. value, and sig. Level)**

	<b>Occurrence of admission time</b>	<b>No.</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>t</b>	<b>Sig. (2-tailed)</b>
<b>Total</b>	one time	94	46.798	10.803	1.630	0.105
	more than one time	56	49.696	10.058		
<b>Anxiety</b>	one time	94	19.691	5.575	1.419	0.158
	more than one time	56	21.018	5.479		
<b>Depression</b>	one time	94	27.106	6.493	1.501	0.136
	more than one time	56	28.679	5.689		

“t” standard table at sig. (0.05) and df (148) = 1.96

“t” standard table at sig. (0.01) and df (148) = 2.58

## **5.4 Summary**

in this chapter the researcher present the result with consistence with the research objectives and question , begin description demographical characteristic such as ( sex , age, income, level of education, martial status). The result revel prevalence of risk factors for CAD and prevalence of anxiety, prevalence of depression and total both anxiety and depression among coronary heart disease patients. Then we concluded the relationship between the prevalence of anxiety, depression and total with demographical data among coronary artery disease patients.

# Chapter 6

## Conclusion and Recommendation



Introduction



The main result



Conclusion



Discussion



Recommendation



Suggest research

## **Chapter 6**

### **Conclusion and Recommendation**

#### **6.1 Introduction**

In this chapter the researcher will discuss the main result from chapter five according to the main research questions, after discuss the main result, the researcher put the recommendation consistence with the study problem result and are concordant with other literature.

#### **6.2 Demographic result**

the demographic results reveal that female was 51.3% and male was 48.6%, more than 60 years was high among age group was 47.3% but less than 40 years 4.6% was lowest group , most of patients from sample was from Gaza city was 70.6% because Al Shifa hospital was located in Gaza city , house wife was high 48.6% and simple worker was 4%, marred was 74.6% but single was 1.3%and widower was 24%, illiterate patients was 31.3% and university was 4% and patients income less than 1500 NS was high category 84% and more than 3001NS was 3.3% .

#### **6.3 The main result**

The result revealed that there is strong association between prevalence of anxiety, depression and Coronary heart disease.

Coronary heart disease patients were high prevalence of anxiety and depression. The prevalence of anxiety was 64.67%, the prevalence of depression was the same

percentage 64.67% among sample and the prevalence of total anxiety and depression was 66%.

Prevalence of anxiety was high 84.42% among female, 43.84% among male, prevalence of depression among female group was High 80.52%, male 47.95%. Prevalence of total anxiety and depression among female is higher too was 87.01%, male 43.84%.

This study reveal the prevalence of associated factors to CAD was Physical inactivity 86%, hypertension 47.33%, obesity and Diabetes Mellitus was 40.6 %, family history 30.67%, elevated triglyceride level 27%, cigarette smoking 22%,elevated total cholesterol 19.33%, haply bubble 5.33%.

#### **6.4 Conclusion**

- There is statistically significant relationship between the prevalence of anxiety, depression and total degree and coronary artery disease.
- There is statistical significant relationship between the prevalence of anxiety, depression and total degree and sex.
- There is no statistical significant relationship between the prevalence of anxiety, depression and total degree and age group.
- There is statistical significant relationship between the prevalence of anxiety, depression and total degree and martial status.

- There is statistical significant relationship between the prevalence of anxiety, depression and total degree and monthly income.
- There is statistical significant relation ship between the prevalence of anxiety, depression and total degree and educational level.
- There is no statistical significant relation ship between the prevalence of anxiety, depression and total degree and beta blocker drugs taken.
- There are no any statistical significant relationship between prevalence of anxiety, depression and total degree and the number of admission to coronary care unit.

## **6.5 Discussion**

Question one; is there relationship between the prevalence of anxiety, depression, and coronary artery disease?

The result reveal that it is statistically significant relationship between the level of the prevalence of anxiety, depression, and coronary artery disease patients. The prevalence of anxiety was (64.67%), which agree with. (Moser and Dracut, in 1996) concluded that the prevalence of anxiety after CAD was (19.6%). (Januzzi, et al in 2000) suggested that anxiety is high level among CAD patients in hospital at CCU, the incidence reach to 50%.

The prevalence of depression was the same percentage (64.67%), (Steeds, et al, 2004) said that prevalence of depression among ischemic patients is common (47%) and Zellwerger, et al In 2003 concluded depression strong relationship between CAD, the prevalence of depression (27%), (65%) have manifestation of symptoms depression

and (25%) have major depression with CAD . The prevalence of total anxiety and depression was (66%). Julie, et al (2005). Said that anxiety and depression are more prevalent in patients with CVD than in the general population. (Allonie, et al, 2004) said that depressive and anxiety disorders that lead to absenteeism seem to be associated with an increased risk of ischemic heart disease, especially when depression and anxiety were severe and chronic; this association is independent of socioeconomic status.

And (James, et al) in 2000 said that Anxiety and depression influences outcome in ischemic heart disease.

Follath, in 2003 reported that patients with a chronic coronary heart disease depression also results in a worse cardiac functional status with more frequent and severe chest pain, more physical limitation, less treatment satisfaction and a lower perceived quality of life. Non-compliance with drug therapy is also more prevalent in depressed cardiac patients, the possible pathophysiological mechanisms leading to more frequent complications of coronary heart disease in patients with depression.

Goyal, et al in 2001 studied psychiatric morbidity among patients attending cardiac out patient clinic the result of the prevalence of depression was most common (38.67%) diagnosis but anxiety diagnosis was (14.29%) Patients with anxiety and depression can affected by imbalance of the autonomic nervous system, characterized by sympathetic nervous system up regulation, with excessive catecholamine production, decrease in heart rate variability clinically, the effect of mental stress on established ischemic heart disease has been demonstrated, catecholamine metabolism likely have significant effects on heart rate, blood pressure, cardiac rhythm, and myocardial oxygen consumption. Finally, increases in platelet aggregability have been documented in



depressed patients with CAD. Together or independently, these effects may increase the risk for ischemia and activate unstable coronary syndromes.

researcher suggests that anxiety and depression are common mark among cardiac patients in CCU, the most common psychology in early stages of CAD is denial of the event, then shift to stress and much of the anxiety is based on uncertainly, attempts should be made to explain procedures and medical facts with much reassurance as possible, anxiety increase when the patients transferred to CCU, why transfer? and what expect? , the most common emotion in first few days in a CCU is anxiety , presence and sound of cardiac monitor were initially thought to pose a psychological hazard , surprisingly, a majority of patients denied being frightened by witnessing cardiac arrest and resuscitation in another patient. after adaptive with CCU during third day known about disease the anxiety give away reactive depression, patients are likely to worry about their future lives and mourn the sense of loss associated with their heart attack.

Question two; what the main associated factors for coronary artery disease?

The result of study was the prevalence of risk factors at Al Shifia hospital was Physical inactivity was (86%), hypertension was (47.3%), obesity and DM was (40.6%), family history was (30.6%), elevated triglyceride was (27%), cigarette smoking was 22%, elevated total cholesterol was (19.3%), and haply bubble smoking was (5.3%). This result consistence with others study.

Willems, et al (1997) conclusion that the prevalence of hypertension, obesity, and diabetes are higher , prevalence of obesity (38.7% of men, 64.7% of women), sedentary lifestyle (37.5% of men, 66.7% of women), hypertension (30.9% of men, 43.1% of

women), smoking (32.5% of men, 20 % of women), high cholesterol (16.6% of men, 18.9% of women) and diabetes (13.6% of men, 15.6% of women).

Khattab, et al (1999) said that risk factors of CAD were physically inactive people (22.6%) perceived their inactivity as harmful to health, (15.7%) with high dietary fat intake; obese (16.5%) perceived their body build to be a health risk. This was in contrast to (75.5%) of heavy smokers who felt that their behavior was harmful.

El dabbakakeh (2000) result was prevalence of physical inactivity a (53%), obesity was (43%), hypertension (43%), positive family history of IHD (38%), history of diabetes mellitus on (34%) of the population of the study, high blood cholesterol level of (33%), hypertriglyceridemia (14%), smoking (50%) and a high blood uric acid level (25%) .

Palestinian guideline for IHD (2005) said that the common risk factors for IHD were family history of premature CAD, Hyperlipidemia, hypertension, cigarette smoking, DM, hypoalphipoproteinemia, dysmetabolic syndrome, and non tradition risk factors like hyperhomocystinemia, high lipoprotein, high iron level, baldness, earlobe creases.

The researcher concluded that physical inactivity was the most common risk factors identified were lack of physical exercise, high prevalence of physical inactivity was noticed among study sample 129 subjects (86%) and occupied the highest one of the risk factor of coronary heart disease. but a physical active was 21 (14%) which in turn reflects positive association between physical inactivity and increased risk of CHD. but physical activity was decrease risk for IHD. This result explains that physical inactivity lifestyle is a major risk factor for coronary heart disease. physical activities are

improved obesity and help to control of blood sugar ,cholesterol and help to lower blood pressure so physical activity very important factor to prevent attack of IHD.

Hypertension is second prevalence of risk factors for coronary artery disease was 71subjects who have history of hypertension represented (47.33%). Elevated blood pressure is the most insidious of all risk factors because it is asymptomatic lead to myocardial oxygen demands to exceed the supply, hypertension (high blood pressure) is a major risk factor for cardiovascular disease, and the risk increases as blood pressure rises glucose intolerance and diabetes, it also increased risk for heart disease and other such as stroke, renal disease. The prevalence of hypertension exists with obesity, blood cholesterol levels, DM, smoking.

Body Mass Index is just one of many factors related to developing coronary artery disease, high prevalence of obesity among population sample. in the WHO criteria for body mass index was less than 18.5kg/m<sup>2</sup> means Underweight, 18.5-24.9 kg/m<sup>2</sup> means normal weight, 25-29.9 kg/m<sup>2</sup> mean overweight, 30-39.9 means obese, more than 40kg/m<sup>2</sup> means morbid obesity .high prevalence of obesity is an indicator of the health status of the adult population .table (5.12) shown BMI more than 30kg/m<sup>2</sup> is 61 subjects (40.67%), this reflect positive association between obesity and coronary heart disease, the high prevalence of obesity is consistent with several studies . Abdominal fat, or a “beer belly,” versus fat that accumulates on the hips, is associated with increased risk of coronary heart disease and heart attack. Overweight individuals are more likely to have additional risk factors related to heart disease, specifically hypertension, high blood sugar levels, high cholesterol and low of HDL, high triglycerides, and diabetes. Weight reduction can reduce risk factors because weight reduction can decrease myocardium oxygen demand imposed by obesity.

DM high prevalence was 61 subjects (40.67%) among study population occupied third risk factor of coronary artery disease like obesity, the relationship of elevated blood glucose and increased evidence of coronary heart disease by accumulation of thrombus, fats. That reflect positive association between DM both type (type I, type II) and occurrence of CAD, the high prevalence rate of DM in study are consistent with observational settings. The risk of CAD is often due to accompanied dyslipidemia that leads to increased occupancy of heart disease and renal, stroke. Control of DM without modification of other risk factors does not reduce the risk of coronary heart disease.

Table (5.14); shown types of DM, type II high prevalence from type I, type I diabetes marked deficiency in the production of insulin by pancreas (insulin depended diabetes mellitus) about 5 to 10% from people, type II result from insulin resistance and impaired insulin secretion (non insulin depended diabetes mellitus) about 90% to 95%. From table (5.14) shown that type II is more common was 42 subjects (28%). Reflects positive association between type II diabetes mellitus and occupancy of CAD.

Positive family history was 46 subjects (30.6%) in table (5.17). That explained that strong association between family history of coronary artery disease and attack of coronary heart disease, family history it difficult to change or control like age, and race. This indicates that children of parents with heart disease are more likely to develop it themselves.

Triglyceride level is divided the range of triglyceride level to two level ideal range less than 250mg/dl and high range more than 250mg/dl increase risk, prevalence of TG among sample was 41 subject (27.33%) that explain TG were predictive of CAD, The link between high triglyceride levels and heart disease, a high triglyceride level is an independent risk factor for heart disease in some people's. TG can be control by non

pharmacological management of high TG consist of weight loss, cessation of alcohol consumption, smoking cessation and physical activity.

Total cholesterol level has been linked to the development of CAD event with continues and graded relation, cholesterol normal (< 200 mg/dl), borderline (200-239 mg/dl) and high (240 mg/dl). Table (5.17) shown that desired group cholesterol normal was (54%), borderline was 26.67% and high risk was 19.33% .that mean cholesterol is positive risk factor and association with development of CAD. Other risk factor such as high blood pressure, DM, smoking, obese, physical inactivity affect on cholesterol level.

The evidence that cigarette smoking increases the risk for heart disease event is based primarily on observational studies, cigarette smoking play big role at thrombus formation cigarette smoking contributes to the development and severity of CAD. Cigarette smoking directly responsible for many people deaths from heart disease, Smoking cigarette increase the risk of early death from heart disease, although evidence is much stronger for cigarette smoking., It causes deterioration of elastic properties in the aorta, the largest blood vessel in the body, and increases the risk for blood clots, It increases the activity of the sympathetic nervous system (which regulates the heart and blood vessels). Table (5.18) shown that current smoker was 22.67%, former smoker was 16%, never smoker was 61.33% but not statistically significant .means positive statistically significant association, this indicate that smoker risk of heart disease is greater than that of non smokers. People who cigarette smoking seem to have a high risk of death from CAD, stroke, lung disease. Although smoker is very dangerous risk factor for attack of but happily bubbly smoking is negative association with development CAD, table (5.19) shown was who not smoker was 142 subjects (94.67%) but smoker was 8 subjects (5.33%).

Question three: are there any statistical significant relationships between prevalence of (anxiety, depression, and total degree) and demographical characteristics?

There are statistically significant relationships between the prevalence of anxiety, depression and sex. The prevalence of anxiety and depression among CAD patients are high among female than male, was in male 43.8%, and 87.01% in female. In 2001 Abolfotouh, et al said prevalence of depression among female 27.7%, male 12.7%. and Nickel, et al in 1990 stated that prevalence of anxiety and depression among female is high .but Stewart, et al (2003) concluded that there was no significant relation between both sexes.

Hippisley-Cox et al (1998) said that depression in male affected on development CAD and not affect in female but anxiety haven't significantly association in both ( male or female). Zellwerger, et al in 2003 said that depression affected on female more than male. Mean those females are exposing to depression more than male.

But .El-Gatit, and Haw in 2003 concluded that no relationship between prevalence of depression and sex.

Researcher concluded that prevalence of anxiety and depression or both more than in female group among sample because biological differences change (hormones, menses) or marital problems due to change in self concept and body image, general appearances, fats woman, periodic puffiness of tissue, change skin color to sallow, jaundiced look and slowing of body movement, the attack of CAD causes more change of self image and body movement all these state are consider a big psychosocial stressors become female more than male in anxiety or depression and both .

Question three: Are there any statistical significant relationship between the prevalence of anxiety, depression, and total degree and age group?

Result showed that was not statistically significant relationship between prevalence of anxiety, depression and age group. These result reveals that anxiety, depression is general phenomena in all age group and expose in the same level.

Although many study said that positive relationship between prevalence of anxiety, depression and age group , Ensinck, et al. in 20002 said A significant interaction was observed between the age at diagnosis of depression and sex, in 1990 Nickel, et al conclusion that the strongest relationship of both age groups. Abolfotouh, et al in 2001 state that prevalence of depression high in old age 75-84 years. But .El-Gatit and Haw in 2003 finding that no relationship between depression and age and sex. Luukinen, et al (2003) said that depressive symptoms increase the risk of sudden cardiac death, but not that of non- sudden cardiac death and non-fatal MI among the elderly subjects.

Stewart, et al. In 2003 said that patients younger than 58 years (the lowest quartile) were more likely to have depressive symptoms than older patients.

The researcher summarize that prevalence of depression and anxiety are may begin at any age and the age of onset is fairly evenly distribution throughout adult life because the family responsibility increased and the most of our community less than 15 years so means the Palestinian society is mostly dependent, a high prevalence anxiety, depression of at each stage of the life cycle from adolescences to old age, all age group are vulnerable to anxiety and depression.

Question three: Are there any statistical significant differences in (anxiety, depression, and total degree) referred to martial status?

Result shown that it is statistical significant relationship between prevalence of anxiety, depression and martial status (single - married –widower) the sample haven't divorce.

The result was widower is high group of prevalence of anxiety, depression. Abolfotouh, et al (2001) said that have statistical significant between depression (psychosocial ) and unmarried status were (single , divorce ,widowed or separate) was high (24.3%) and between psychosocial and loneliness (4.5%).

Stewart et al. (2003) reported that depressive symptoms were more likely to adverse life events during the preceding year, including divorce, and marital or family problems.

Turner (1999) said that The relationship between martial status and the spectrum of depressive illness is not clear, there is some disputed evidence that married woman tend more toward depression than do single woman; single men more than single woman ; and single men slightly more than married men . The separated, divorced, and widowed have slightly higher rates in both sexes.

Researcher conclude that martial status has relationship with prevalence of anxiety and depression because it may be due to increased worry of loneliness and uncertainty about future, depression from loss of partner, loss of bodily function including sex drive and a illness intrusive.



Question three: are there any statistical significant relationship between the prevalence of anxiety, depression and monthly income?

The result reveals that statistical significant relationship between prevalence of anxiety, depression and income (<1500, 1500-3000, >3000) NS. It was high prevalence of anxiety, depression among less than 1500NS, low monthly income,

In 2003 Stewart, et al. Described symptoms of depression were more common in patients who fewer social contacts, financial difficulties. Rozanski, et al in 1999 concluded that low education level, low income, or occupation. Low socioeconomic status is associated with increased levels of depression, anxiety and psychosocial risk factors in CAD. Schulman, in 2005 said that anxiety, depression has long been linked to poor status, poor medical compliance.

Researcher support these result because was consistence with my study that low income gets on high grade at depression, anxiety scales. Income is an important determinant of the health status enjoyed by people within society ,low income has very serious consequences for CHD mortality rates , low income cannot able to pay for doctor visit and investigation, with poor nutrition, home condition , breaking after of children and life need. low income, low education and occupation determine the treatment and, decreased knowledge about risk factors that causes cardiac death such as smoking, D.M.

Question three: Are there any statistical significant relationship between prevalence of anxiety, depression and total and educational level?

The result shown the prevalence of depression, anxiety or total (anxiety and depression) are higher when level of education is low, prevalence of depression, anxiety or total (anxiety and depression) was among illiterate level people more than secondary, diploma and university levels. Prevalence of depression, anxiety or total (anxiety and depression) is among primary level more than university level. High depression, anxiety or total (anxiety and depression) are in primary comparisons with diploma and other level is not differences.

Rozanski, et al (1999) study was found relationship between the psychological factors and socioeconomic such as low income, low level of education.

The researcher suggestion that result was consistence with research result, low educated patients face problems, cannot deal or understand when he transfer to CCU, cannot cope with problems (disease), cannot express about internal feeling (anxiety and stress) so he always asking, noncompliance with treatments lead to refuse treatments, unable to compensate for the stressors leads to premature to discharge that expose to high SCD. High educated patients have low prevalence of anxiety and depression, can watch the prevention education program at CAD and risk factors, able to adaptive with problems especially in CCU.

Question four: Are there statistical significant differences in (anxiety, depression, total degree) referred to the Beta blocker taken (yes, no)?

From result explain that no statistical significant relationship between taken beta blocker (Atenolol) and prevalence of anxiety or depression and total (anxiety and depression). But Nickel, et al in 1990 concluded that statistical significant relationship between prevalence of anxiety and depression and taken beta blocker among cardiac patients.

The researcher summarizes that possible role of beta-blocker therapy as a cause of depression remains controversial. Although beta-blockade causes central nervous system side effects that can be confused with symptoms due to depression, including sedation, nightmares, and fatigue, no difference between the treatment and placebo groups with regard to the frequency of depressive symptoms was noted in the first 30 months of the Beta-Blocker Heart Attack Trial. Given the lack of data demonstrating otherwise, the benefits of beta-blockade therapy far outweigh any potential risk of depression in patients with CAD and should therefore be prescribed when indicated.

Question five: Is there statistical significant differences in (anxiety, depression, total degree) referred to the number of admission (one time, more than one time)?

Results reveals that no statistical significant relationship between number of admission and prevalence of anxiety or depression and total (anxiety and depression).

The researcher suggestion that admission number is not increasing anxiety or depression because who admitted to CCU one time like who admitted many time. So admission time cannot affect on prevalence of anxiety or depression because already anxiety or depression occurred.

## 6.7 Recommendation

After discuss the result of study the researcher recommended that:

CAD is dangerous disease so

- Determine data about morbidity and mortality with true way.
- Establishment of prevention program deal people at high risk for attack of CAD:
  1. Education people about ( harmful of smoking , physical activity , dietary fat intake , obesity , harm of anxiety , stress and depression)
  2. Promote the healthy life styles
  3. Increase knowledge and interest about psychological role.
- Establishment of psychotherapy, group therapy and social programs cooperation with patients and their families hospital or home
- Developed the out patients clinic, emergency room by decrease waiting time for patients, decrease crowded.
- A comprehensive data base information on cardiac patients at CCU in hospital such as nutrition, work, life style, smoking, emergency telephones number for any instruction or usable status.
- Attention should be paid for Psychological complaints of the cardiac patients should.

## **6.8 Suggest research**

After the researcher finished the study find many study can need to research:

1. Prevalence of risk factors of coronary heart disease in Palestine.
2. Psychological factors post heart surgery.
3. Anxiety and depression among coronary heart disease risk factors
4. Impact of coronary heart disease on life style after discharge from hospital.
5. Relationship between the psychological factors and heart drugs.
6. Prevalence of smoking among coronary heart disease patients.
7. Is psychological factors are independent risk factor for attack of coronary heart disease.
8. Psychological characteristics and congestive heart failure.

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# Annexes

	<b>Annexes</b>
⊗	Body mass index
⊗	Normal reading of blood pressure
⊗	Criteria for diagnosis depression
⊗	Consent form
⊗	Sociodemographics, economic ,medical
⊗	Hopkins Symptom Checklist
⊗	Helsinki committee approve
⊗	Ministry of health approve
⊗	

### Body-mass index

Body Mass Index	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0-39.9	Obese
+ 40	morbid obese

### Annex (2)

#### Normal reading of blood pressure

Category	Systolic (mm Hg)	Diastolic (mm Hg)
Normal	< 130	<85
High normal	130-139	85-89
Hypertension stage1	140 - 159	90-99
Stage 2	160-179	100-109
Stage3	≥ 180	≥110

### Annex (3)

## Criteria for diagnosing depression

A. Five or more features, including at least 1 from Group 1 and the remainder from Group 2, must be present nearly every day for at least 2 weeks.

- Group 1:

- Depressed mood for most of the day
- Loss of interest or pleasure in almost all activities most of the day

- Group 2:

- Significant weight loss or gain or an increase or decrease in appetite
- Insomnia or hypersomnia
- Psychomotor agitation or retardation
- Fatigue or loss of energy
- Feelings of worthlessness or excessive or inappropriate guilt
- Diminished ability to think or concentrate, or indecisiveness
- Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, a suicide attempt, or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupation, or other important areas of functioning.

C. The symptoms are not due to the direct physiologic effects of a substance or a general medical condition.

D. The symptoms are not better accounted for by bereavement.

Dysthymic Disorder

A. Depressed mood for most of the day, for more days than not, for at least 2 years

B. Presence, while depressed, of two or more of the following

1. poor appetite or overeating

2. Insomnia or hypersomnia

3. Low energy or fatigue

4. Low self-esteem

5. Poor concentration or difficulty making decisions

6. Feelings of hopelessness.

C. The disturbance is not better accounted for by a chronic major depressive disorder.

## Annex (4)

بسم الله الرحمن الرحيم

### نموذج موافقة

عزيزي المشارك أنت مدعو للمشاركة في دراسة بعنوان:

معدل انتشار القلق و الاكتئاب بين مرضي الشرايين التاجية والعوامل المسببة - في مستشفى دار الشفاء – قطاع غزة.

أنا \_\_\_\_\_ أوافق على أن أكون مشاركا في الدراسة التي يجريها السيد / أكرم سيد سلامة تحت إشراف الدكتورة / سوزان شعشاعة، كجزء من متطلبات برنامج ماجستير الصحة العامة ( صحة نفسية مجتمعية ) المنعقد في كلية الصحة العامة –جامعة القدس. إنني أتفهم بأنني سوف أقوم بالإجابة علي استبيان بصدق وأمانة.

الهدف من هذه الدراسة تقييم معدل انتشار القلق و الاكتئاب بين مرضى الشرايين التاجية و معرفة العوامل المسببة لمرض القلب و محاولة المساعدة في تطوير برامج صحية وقائية يستطيع أن يستفيد منها هؤلاء المرضى. الوقت المطلوب لذلك لا يتجاوز 35 دقيقة، كما أنه سوف لا يكون أي مضايقات أو أخطاء نتيجة المشاركة في هذه الدراسة.

من الممكن أن استفيد من المشاركة بالتعبير عن مشاكلي و احتياجاى النفسية بجرية وبشكل سري حيث أتي علي ثقة تامة أن كل المعلومات التي أدلي بها سوف تحفظ بشكل أمن وسري وسوف تخضع لنظام التشفير بواسطة إعطاء كل استبيان رقم دون ذكر أسماء أصحابها ، كما أن الإجابات سوف يتم تحليلها كمجموعة وليست بصورة فردي .

لقد قام الباحث بشرح لي الدراسة وأهدافها و أجاب عن كل استفساراتي و أنا لدي الحرية الكاملة في الانسحاب من المشاركة في أي وقت شئت، وان قرار الانسحاب لن يلحق بي أي ضرر جسدي أو معنوي .  
لقد وافقت علي المشاركة في هذا البحث مع إدراكي أن الموافقة لن تعفي الباحث أو المؤسسة الداعمة من أي سلوك أو تصرف خاطئ.

التاريخ

التوقيع

## Annex (5)

بسم الله الرحمن الرحيم

عزيزي / عزيزتي  
أمامك مجموعة من الأسئلة تصف الحالة الاجتماعية و الصحية و الاقتصادية نرجو الإجابة عليها.

الاسم: \_\_\_\_\_

السكن:

1- مدينة غزة  2- شمال غزة  3- المناطق الوسطي

4. خان يونس  5- - مدينة رفح

العمر: \_\_\_\_\_

الجنس: 1- ذكر  2- أنثى

الحالة الاجتماعية:

1- أعزب  2- متزوج  3- مطلق  4- أرمل

العمل:

1- لا يعمل  2- عامل عادي  3- عامل صناعي  4- موظف

5- تاجر  6- أخرى \_\_\_\_\_

عدد سنوات الدراسة : \_\_\_\_\_ سنة

مجموعة الأسئلة التي توضح ا لوضع الاقتصادي

الدخل الشهري بالشيقل: \_\_\_\_\_

## مجموعة الأسئلة التي توضح الوضع الصحي

عدد مرات الدخول: \_\_\_\_\_

تاريخ بداية المرض: \_\_\_\_\_

هل تعاني من مرض السكري:  نعم  لا

**إذا كانت الإجابة نعم**

النوع:  1. النوع الأول  2. النوع الثاني

متى بدأت تعاني من مرض السكري: \_\_\_\_\_

هل تعاني من مرض ضغط الدم:  نعم  لا

متى بدأت تعاني من مرض الضغط: \_\_\_\_\_

هل هناك أحد أفراد الأسرة يعاني من أمراض القلب:  نعم  لا ماهي صلة القرابة: \_\_\_\_\_

لا

هل أنت مدخن:  1. حاليا  2. سابقا  3. مطلقا

**إذا كانت الإجابة 1 أو 2**

متى بدأت التدخين: \_\_\_\_\_

هل أنت مدخن الأرجيلا :  نعم  لا

**إذا كانت الإجابة نعم:**

متى بدأت تدخين الأرجيلا : \_\_\_\_\_

هل تمارس أي نوع من أنواع الرياضة: نعم  لا

ما نوع الرياضة التي تمارسها : \_\_\_\_\_

الوزن: \_\_\_\_\_ كيلو جرام      الطول: \_\_\_\_\_ سنتيمتر

BMI = \_\_\_\_\_

نسبة الكولسترول (Cholesterol) في الدم: \_\_\_\_\_

نسبة الدهون الثلاثية (Triglyceride) في الدم: \_\_\_\_\_

هل تتناول أي أنواع من الادوية الآن : نعم  لا

**إذا كانت الإجابة نعم**

ما هي :

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.



## Annex (6)

### مقياس "القلق و الاكتئاب" لهو بكنز

التاريخ / /

الرقم: \_\_\_\_\_

إن الأعراض و المشاكل هي إمارات يشعر بها الناس أحيانا. يرجى وضع إشارة ( X ) أمام الإجابة التي تشعر أنها تنطبق عليك و التي تصف سلوكك وحالتك النفسية خلال الأسبوع الماضي بما في ذلك اليوم.

4	3	2	1	تصحيح العبارات
كثيرا جدا	كثيرا	قليلا	لا	العبارات
				١. هل شعرت بالخوف فجاءة دون سبب
				٢. هل شعرت بالرغبة أو الفزع
				٣. هل شعرت بالإغماء، بالدوار، بضعف عام
				٤. هل شعرت بالعصبية ورعشة داخلية
				٥. هل شعرت بسرعة خفقان القلب
				٦. هل شعرت برجفة / رعدة
				٧. هل شعرت بالتوتر و الإثارة
				٨. هل تشعر بالصداع
				٩. هل شعرت بنوبات من ذعر و هلع
				١٠. هل شعرت بالقلق وعدم الهدوء
				١١. هل شعرت بانخفاض في الحيوية و بطء في الحركة
				١٢. هل تلقي اللوم على نفسك في كل الأمور
				١٣. هل تبكي بسهولة
				١٤. هل ضعفت شهيتك للطعام

كثيرا جدا	كثيرا	قليلا	لا	العبارات
				١٥. هل تجد صعوبة في النوم و الاستمرار به
				١٦. هل شعرت بفقدان الأمل في المستقبل
				١٧. هل شعرت بالكآبة / اليأس
				١٨. هل شعرت بالوحدة
				١٩. هل فكرت بإنهاء حياتك ( الانتحار)
				٢٠. هل شعرت انك مقيد في حياتك ولا تستطيع تغيير أي شيء
				٢١. هل تشعر بالقلق كثيرا نحو الأمور
				٢٢. هل فقدت اهتمامك بالأمور
				٢٣. هل تشعر بالجهد بكل ما تقوم به
				٢٤. هل شعرت بعدم قيمتك

## Annex (7)

Palestinian National Authority  
Ministry of Health  
Helsinki Committee

بسم الله الرحمن الرحيم



السلطة الوطنية الفلسطينية  
وزارة الصحة  
لجنة هلسنكي

Date: 6/3/2005

التاريخ: 2005/3/6

Mr./ Akram Said Salama

السيد: اكرم سيد سلامة

I would like to inform you that the committee has discussed your application about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:-

Anxiety and Depression among coronary heart disease patients at Al-shifa hospital – Gaza strip: prevalence and associated factors.

الاكتئاب والقلق بين مرضى الشرايين التاجية في- م. الشفاء- قطاع غزة، معدل انتشاره والعوامل المساعدة.

In its meeting on march 2005

و ذلك في جلستها المنعقدة لشهر مارس 2005

and decided the Following:-

و قد قررت ما يلي:-

To approve the above mention research study.

الموافقة على البحث المذكور عاليه.

Signature

توقيع

Member

عضو

Member

عضو

Chairperson



S. shara

Conditions:-

- ❖ Valid for 2 years from the date of approval to start.
- ❖ It is necessary to notify the committee in any change in the admitted study protocol.
- ❖ The committee appreciate receiving one copy of your final research when it is completed.

Annex (8)

جامعة القدس



كلية الصحة العامة  
Annex (4)  
School of Public Health

القدس - فلسطين

وزارة الصحة



2005/3/26

السيد د. فيصل أبو الهول  
مساعد عميد كلية الصحة العامة  
م. ب. غزة  
السلامة، وباتنرفيد

عطوفة/ د. عماد طرويه المحترم  
وكيل وزارة الصحة المساعد  
تحية طيبة وبعد،،،

الموضوع: مساعدة الطالب أكرم سلامة

يقوم الطالب المذكور أعلاه بإجراء مشروع بحث بعنوان:

" نسبة انتشار القلق و الأكتئاب عند مرضى الشرايين التاجية في مستشفى الشفاء في قطاع غزة

و العوامل المساعدة "

كمطلب للحصول على درجة الماجستير في الصحة العامة مسار صحة نفسية مجتمعية علماً بأن المعلومات سوف تكون متوفرة لدى الباحث فقط. و عليه نرجو التكرم للإيعاز لمن ترونه مناسب لتسهيل مهمة الطالب في جمع المعلومات اللازمة. علماً بأن هذا البحث يهدف إلى معرفة نسبة انتشار القلق و الأكتئاب عند مرضى القلب بمستشفى دار الشفاء و دراسة العوامل المساعدة لذلك.

موافقتكم دعماً للمسيرة الأكاديمية

و تفضلوا بقبول فائق التحية ،،،

د. سوزان شعشاعة

مساعد عميد كلية الصحة العامة

مدير البرامج - غزة

نسخة: الملف

كلية الصحة العامة / غزة  
رقم الصادر: 2005-138  
تاريخ الصادرة: 2005/3/26



التاريخ: 2005/3/28

الرقم: أم

المحترم،،،،

الأخ/ مدير عام مستشفى الشفاء

تحية طيبة وبعد،،

الموضوع/ مساعدة الطالب/ أكرم سلامة.

نرجو التكرم بتسهيل مهمة الطالب / أكرم سلامة في جمع المعلومات اللازمة لإجراء بحث بعنوان (نسبة انتشار القلق والاكتئاب عند مرضى الشرايين التاجية في مستشفى الشفاء والعوامل المساعدة) وذلك للحصول على درجة الماجستير في الصحة العامة مسار صحة نفسية مجتمعية علماً بأن المعلومات سوف تكون متوفرة لدى الباحث فقط.

وتفضلوا بقبول فائق الاحترام،،،،

د. فيصل أبو شملا

مدير عام المستشفيات

نائب مدير عام الوزارة

صورة للأخت الدكتورة/ سوزان شعشاعة  
مساعد عميد كلية الصحة العامة

ص ١٤٣٦  
تاريخ: ٣/٢٩

