



**PREVALENCE OF PSYCHOLOGICAL DISORDER ASSOCIATED WITH  
CARDIOVASCULAR DISORDER: A RANDOMIZED STUDY AT DIFFERENT HEART  
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**ABSTRACT**

Cardiovascular disorder accounting as chronic disease causing ischemic heart disease (IHD), stroke, hypertensive heart disease, rheumatic heart disease (RHD), aortic aneurysms, cardiomyopathy, atrial fibrillation, congenital heart disease, endocarditis and peripheral artery disease (PAD). The relationship between adverse working conditions and CVD has been investigated for many decades, including studies on the effect of physical workload, noise, long working hours, shift work and social job characteristics such as occupational position. Special attention has been given to the role of work stress. The present study was conducted at different health institutes of cardio center including Liaquat National Hospital, Abbasi Shaheed Hospital and Tabba heart institute of Karachi. Patient suffering from chronic cardiovascular disorder include in this study. About 74% of the patient reported with different types of psycho-behavioral disorder and only few group of person were receiving treatment. From above perspective study it is concluded that inadequate control of cardiovascular disease can trigger life towards psychological burden that may cause multiple psychological disorders.

**KEYWORDS:** Cardiovascular disorder, psychosis, prevalence, stroke, depression.

**INTRODUCTION**

Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. Common CVDs include: ischemic heart disease (IHD), stroke, hypertensive heart disease, rheumatic heart disease (RHD), aortic aneurysms, cardiomyopathy, atrial fibrillation, congenital heart disease, endocarditis, and peripheral artery disease (PAD), among others.<sup>[1]</sup> IHD, stroke, and PAD involve atherosclerosis. This may be caused by high blood pressure, smoking, diabetes, lack of exercise, obesity, high blood cholesterol, poor diet, and excessive alcohol, among others.<sup>[2]</sup> The relationship between adverse working conditions and CVD has been investigated for many decades, including studies on the effect of physical workload, noise, long working hours, shift work and social job characteristics such as occupational position. Special attention has been given to the role of work stress. The mechanisms underlying the association between work stress and heart disease remain still unclear. Possible pathways are through the direct activation of neuroendocrine responses to stressors or more indirectly through unhealthy behaviors, such as smoking, lack of physical exercise or excessive alcohol consumption.<sup>[3]</sup> The endothelial dysfunction has refers to the several pathological conditions include altered anticoagulant and anti-inflammatory properties of

endothelium impaired modulation of endothelium and impairs modulation of vascular growth. This is caused due to the loss of nitric oxide (NO). bioactivity in the vessel wall.<sup>[4]</sup> Several human studies have shown that traditional risk factors for atherosclerosis predispose to endothelial dysfunction. This form of endothelial dysfunction is not merely a laboratory curiosity. Impaired endothelium-dependent vasodilatation in the coronary circulation of humans has profound prognostic implications in that it predicts adverse cardiovascular events and long-term outcome.<sup>[5]</sup> The psychological stress on cardiovascular disease is well known termed as chronic cardiovascular. It occur mostly diminished the cardiac vagal modulation and greater pro coagulant activity in stress patients. It is life threatening condition and caused sudden cardiac death that is caused by malignant ventricular arrhythmias or myocardial infarction. And a number of factors like heavy physical activity, emotional stress, air pollutants, noisy place and dietary intake like coffee and alcohol etc. emotional stress appear to be most life hazard and caused sudden cardiovascular event. Caused due to the activation of sympathetic nervous system. Emotional stress is described as trigger caused by sympathetic arousal. Acute emotional stress can trigger life threatening arrhythmias the mechanism is that the acute episode of emotional stress (anger like stress)

may trigger ventricular ectopic beat and tachycardia as well as acute myocardial infarction.<sup>[6]</sup> Depression and chronic cardiovascular disease may related in several ways that high level of depressive symptoms in male and female are associated with increased risk of myocardial infarction and acute cardiac event. After depression patient developed different types of arrhythmias and frequent and severe chest pain. The basic pathophysiology is that higher sympathy adrenergic stimulation and increased platelet aggregation.<sup>[7]</sup> Postpartum depression women often experience this type of depression after delivery and postnatal depression it is a more severe form of depression. The depression is not cause by single source it is mainly caused by multiple sources like genetics, neurological changes like neurotransmitters changes, environmental changes and psychological changes. The risk factors associated with depression is life event like divorce, poverty, genetic factor, childhood trauma, a past head surgery and some drugs like corticosteroids, antihypertensive agent like reserpine and anti-acne drugs.<sup>[8-9]</sup> Depression is a risk factor of chronic heart disease there was strong evidence across that depression is an independent risk factor for clinical chronic heart disease and its prognosis. The depression is existing for both men and women in different countries and various age groups. The chronic heart disease is directly related to the severity of depression. A 1-2 fold increase in CHD for minor depression and 3-5 fold increase for major depression. The strength of the association is of similar magnitude to that of standard risk factor such as smoking or hypercholesterolemia.<sup>[10-15]</sup>

The objective of the study was to evaluate the cardiovascular disorder associated stress and major depressive disorder prevalence among male and females in view of the fact to identify its prevalence, causes and treatment options associated with this chronic syndrome.

## METHODOLOGY

### Study design

To achieve the above mentioned aim a perspective study was conducted from different people of Karachi Pakistan. The participation for the collection of the data were randomly approached and visited. A questionnaire was designed and its parts were include assessment of patient life style modifications like diet, lab profile before and after cardiac disease history along with their daily social activities and how cardiac patients goes to chronic conditions was also to be observed. The questionnaire was designed according to patient feasibility to respond effectively in such a way that it had questions in Urdu side by side along with English having a point of patient compliance in mind and in order to improve patient compliance. The study was also including interview based forms for those who were in chronic state and cannot fill the questionnaire.

### Ethical approval and Duration of study

This study was started after the ethical approval of Dean of pharmacy department of Jinnah University for Women. The duration of the study started from June 2016 to October 2016.

### Inclusion and exclusion criteria

The inclusion criteria were all the cardiac patients who are hospitalized and also the ones that are at home continuing their therapy. Patient with acute cardiac disorder with no cardiac syndrome were excluded from the study.

### Area and sampling

The area which was kept under consideration was Karachi Pakistan. To achieve the desired goal surveys were conducted and visited different health institutes of cardio center, hospitals like Liaquat National Hospital, Abbasi Shaheed Hospital and Tabbah heart institute. The sample size (n= 170) out of which 155 were covered from hospitals which are mentioned here where as 15 were those who are at home and their therapy is going on. The result interpreted statistically expressed in percentages.

## RESULTS

As per shown in table no 1 that is demographic factor. We can come up with that above age of 40% people are facing CVD as per mention in table that is 80%. After survey research we conclude that gender male are at highly risk with CVD with the 92% of our population that 92% of CVD affected population here is 85% of male gender is married that shows married person prove to this disease at high percent somewhere there is a factor of stress is also concern in married people of affected by CVD.

Moreover we come cross to this study a new and interesting factor also arise that is literacy. Most of uneducated people of our population is suffering from CVD at 54% because unaware of health problems. Next and common factor of our society is obesity that is so common sense is obese is at high risk of CVD and most 55% is now actually has CVD.

**Table No 1: Demographic Factor**

Demographic Factor	Categories	Answer
Age	0-20	0%
	20-40	20%
	Above 40	80%
Gender	Male	92%
	Female	8%
Marital status	Single	7%
	Married	85%
	Divorced	0%
	Widow	7%
Education	Educated	46%
	Uneducated	54%
Weight	1-20 kg	0%

	20-40 kg	0%
	40-60 kg	45%
	Above 60	55%

We are at survey offended population of CVD in our society. For acknowledged us their habits and hygiene. We highlighted in our survey their social activities example alcoholism etc. some social activities that is so can cause harm on health such factors are as under in it. First of all smoking. Our societies do not accept it as bad habits but it can cause harm in normal person. So CVD patients are involving in this habit in present of 20% move forward to tea its 40% coffee 15% energy drinks 18% tobacco 7%. This is already shown that tea is taken at high percentage in CVD patients [Figure 1].

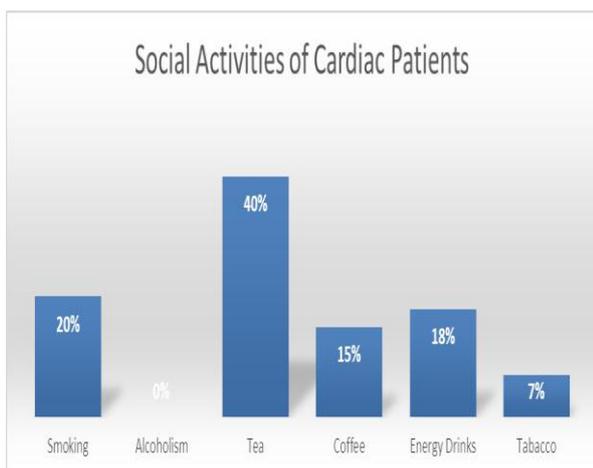


Figure 1: Social Activities of Cardiac Patient

As mentioning CVD in patients. We concerning all their health problems regarding CVD or which and how comorbid disease relates on affect CVD. First or common disease that is common in our society is diabetes is in ration of 90%. The very spreading disease and after that we found hypertension at 17% which is common after diabetes. Third one is asthma 10%. Moving forward pulmonary edema 7%. Arthritis common not the least 4% and last tuberculosis 2%. As mention diabetes is very common in comorbid disease regarding CVD [Table 2].

Table No 2: Co Morbid Disease Along With Cardiac Disease

Co-Morbid Disease	Percentages
Diabetes	40%
Hypertension	35%
Hyperthyroidism	2%
Arthritis	4%
Pulmonary Edema	10%
Asthma	15%
Tuberculosis	2%
No Disease	10%

After mentioning all respect of CVD and their affected patients. We got to knows from all CVD disease heart

attack is amongst in our society regarding CVD that is 32% in percent. After heart attack coronary artery diseases we found 28% percent in CVD patients. Some other CVD patients who suffer from left Ventricular hypertrophy 10%, Myocardial infarction 10%, Ischemia 7%, Angina 5%, Arrhythmia 3%. [Figure 2].

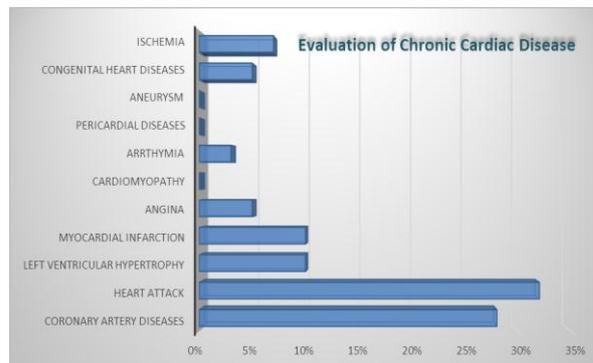


Figure 2: Chronic Cardiac Disease sample

In chronic cardiovascular disease the most considerable part was social or psychological condition of patient. Stress is the main reason as it could not neglect it. So common and expected answer from survey was stressful people that 74% goes highest and most stressful patient can attain 26%. [Figure 3].

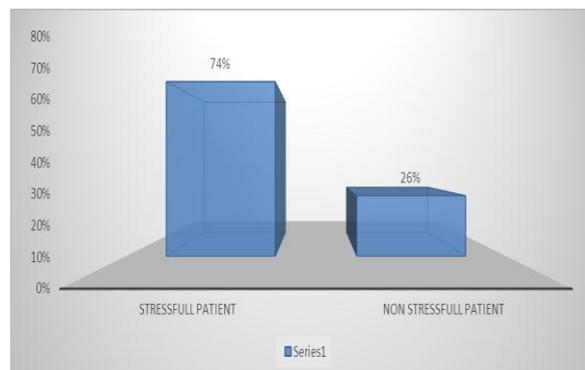


Figure 3: Patient diagnosed with CVS associated stress

After monitoring and sense of population of CVD patient in our society more the treatment they are on it. Check all the prescribing and fellow ups. We found that most of the CVD patients is on ascard (Acetyl salicylic acid) to be given as to lower blood viscosity that to take by 71% or other are given by the doctor are Nitroglycerine 64.40% Metoprolol 57.10% Atenolol(Tenormin) 55.70% Propranolol 14.20% Atenolol 55% Ramipril 42.50% Valsartan / Losartan 44.80% Propafenon 8% Glucophage 57% Getryl 23% Diamicon 10% Micronized 1% furosemeide 11.40% Atorvastatin 60% Rosuvastatin 42.8% Clonazepam 7.14% bromazepam 10% Phenytoin 28.5% Gaplin / Pregablin 60% sinazamol 30% Omeprazole 28.5% Eesomeprazole 42.8% Ranitidine 5% Multivitamins 64% respectively.

Among screening CVD we lighten their psychological disorder prevalence that the common stress, depression, anxiety, schizophrenia the patient having coronary artery disease is also facing stress disorder and after survey coronary artery disease problem is 20% and 2% stress with it taken treatment of it also that propranol (which treat stress also). Patients having left ventricular hypertension 5% do not take treated of depression. Heart

attack aside by anxiety is treated by clonazepam of 30% myocardial infarction 7% with no treatment of schizophrenia. Angina 3% is also treated by bromazepam of sense stress. Arrhythmia 3% is treated by clonazepam of depression 3%. Congenital heart disease 1% is taken no treatment of stress. Hypertension 10% is taken treatment with lorazepam. [Table 3].

**Table 3: prevalence of psychological disorder with Treatment**

Cardiovascular Disease	Psychological Disorder Prevalence	Treatment	Percentage
Coronary Artery Disease	Stress	Propranol only 2%	20%
Left Ventricular Hypertrophy	Depression	No Treatment	5%
heart attack	Stress, Anxiety	Clonazepam	30%
Myocardial Infarction	Schizophrenia	No Treatment	7%
Angina	Severe Stress	Bromazepam	3%
Arrhythmia	Depression	Clonazepam	3%
Congenital Heart Disease	Stress	No Treatment	1%
Hypertension	Severe Stress	Lorazepam	10%

## DISCUSSION

Cardiovascular disease (CVD) is a class of diseases that accounting ischemic heart disease (IHD), stroke hypertensive heart disease rheumatic heart disease (RHD, aortic aneurysms, cardiomyopathy, atrial fibrillation, congenital heart disease, endocarditis, and peripheral artery disease (PAD). Among others. The relationship between adverse working condition and CVD has been investigated for many decades, including studies on the effect of physical workload, noise, long working hours, shift work and social job characteristics such as occupational position. Depression is a mental health disorder. It is a mood disorder characterized by persistently and continuous low mood in which there is a feeling of sadness and loss of interest. Depression is a persistent disorder the average length of depression is 6-8 months. Depression caused fluctuation in normal mood and caused disturbs normal healthy life. Different kinds of depression like unipolar depression in this depression the mood are not altered. In bipolar disorder the both manic and depressive episodes separated by periods of normal mood. And in major depressive disorder this condition is characterized by depression accompanied by psychosis. The aim of this study was to evaluate the cardiovascular disorder associated stress and major depressive disorder prevalence in order to achieve the aim a survey form (questionnaire) was designed considering patient compliance in mind the form had question in both English and Urdu too. For the data collection different hospitals were visited like Liaquat National Hospital, Abbasi Shaheed Hospital and Tabba Heart along with that those cardiac patients who are at home and continuing their therapy at home were also focused. While collecting data it was observed that majority of patient were above 40 kg age group and they were married and majority of them were having weight above 60 kg accounting to the collected data. Among different cardiac diseases the prevalence of heart attack

was the major. Besides heart attack coronary artery disease left ventricular hypertrophy, M.I, angina, cardiomyopathy, arrhythmia heart disease and ischemia with the percentages 28, 10%, 5%, 0%, 5% & 7% respectively. There were many comorbid disease associated with cardiac patient like diabetes 40% hypertension 35% hyperthyroidism 2% asthma 25% pulmonary edema 10% etc. Social activities of cardiac patient includes smoking, alcoholism, tea, coffee, energy drinks, tobacco & it was found that majority of cardiac patients are involved in having tea in their daily life after tea smoking prevalence was there in cardiac patients. Many patient having different diseases are also having stress in their life which might be due to mentally disturbed it was observed that majority of the cardiac patients were not having any treatment or therapy for stress management very few people are using propranolol (Inderal) along with their cardiac disease which reduce stress as well but majority of cardiac patient are not using this drug or other medication for stress management. Treatment against psychosis is not being taken or consideration it is observed that patient have awareness in this regard and are not realizing that anti-psychosis may relax a patient but careful usage according to the condition should be monitored and must be counseled in a proper way.

## CONCLUSION

Our study concluded that old & deliberate patients with cardiovascular disorder can also predispose for psychological illness due to loss of compliance, inadequate control of disease progression, long term treatment, social economic burden and drug related underside effects. This study concluded that chronic cardiovascular disorder can predispose patient to experienced psychological disorders. Only few patients were receiving treatment to encounter loss memory neuropathic pain & insomnia. This situation presents a

thoughtful consideration for healthcare authorities to provide rational care to patients.

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