



## Original Article

## Effect of depression and anxiety on quality of life among cardiovascular patients visiting Tertiary Care hospital Lahore

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## ARTICLE INFO

## Key Words:

Cardiovascular disease patients, anxiety, depression, quality of life

## How to Cite:

Shakoor, A., Kamran, H., Shakoor, M., Khalid, S., Shakoor, S., Aslam, M., & Shakoor, H. (2021). Effect of depression and anxiety on quality of life among cardiovascular patients visiting Tertiary Care hospital Lahore: Effect of depression and anxiety on QoL among cardiovascular patients. *Pakistan BioMedical Journal*, 4(2). <https://doi.org/10.54393/pbmj.v4i2.98>

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## ABSTRACT

Cardiovascular diseases (CVD) are the leading cause of death worldwide. Mental disorders like anxiety and depression are common among cardiovascular patients. These mental disorders have adverse effect on quality of life (QoL) among these patients which further increases mortality and morbidity among them **Objective:** The propose of this study was to assess the effect of anxiety and depression on quality of life among cardiovascular patients **Methods:** A cross sectional study was performed at Sir Ganga Ram Hospital Lahore. 100 patients of CVD were selected by non-probability sampling technique. All patients of both genders aged above 18 years with diagnosed CVD were included. In order to measure the anxiety and depression among cardiovascular patients, Hospital Anxiety and Depression Scale (HADS) and WHOQOL was used to assess the QoL of patients **Results:** Out of total 100 patients, there were 47 females and 53 males. Patients mean age was  $54.87 \pm 16.66$ . Among CVD patients, 52 were borderline cases and 33 were abnormal cases of anxiety. 56 cases were borderline and 28 were abnormal cases of depression. Anxiety and depression had adverse effect on QoL among CVD patients. Low scores were found for physical, psychological and environmental domains of WHOQOL. A significant association was found between social relationships domain of WHOQOL with anxiety and depression and the level of significance was p-values 0.016 and 0.043 respectively. There was significant association between psychological domain of QoL with depression ( $P=0.039$ ) and monthly income ( $P=0.016$ ). There was insignificant association between educational level, sex, age with QoL, anxiety and depression **Conclusions:** Study concluded that anxiety and depression have negative impact on QoL and are risk factors for health-related QoL among CVD patients. Persons attending medical care are usually not being assessed for anxiety due to lack of facilities, lack of understanding of disease and over burden of patients. They are responsible for greater mortality and morbidity in CVDs. The depression and Anxiety are the mediating factors and it must be taken into consideration in clinical

practices when QoL is considered as a clinical prerequisite.

## INTRODUCTION

According to WHO, by year 2020 cardiovascular disease and anxiety will result in major disability of life [1]. Anxiety disorders are very common medical health condition in the US and affecting the developing countries as well. CVD anxiety and depression are rapidly emerging and are matter of major and growing concern in both developing and devolved countries. Anxiety disorders also affect the developed countries like Pakistan about 40 million adults of age group 18 and above [2]. Anxiety disorders with a 12-month prevalence rate of 17.7% and higher life time prevalence in women 30.5% than men 19.2% are among the most common psychiatric diagnosis [3]. CVDs are the common cause of death globally and take lives of 17.7 million people every year and 3.6 million in South Asia [4]. Among CVD, females' risk of depression is higher than males but cardiac prognosis was worse for male [5]. Approximately, one out of every five patients suffering from CVD has major depressive disorder (MDD) [6]. Worldwide, MDD was the 4<sup>th</sup> leading cause of disability in 2002 and by 2020 MDD will result in 2<sup>nd</sup> leading cause of disability [7]. Most of all mental disorders are due to change in behaviors leading to reduced physical activity, an unhealthy diet, sleeplessness, sedentary lifestyle, increased catecholamine, smoking, alcohol and addiction are the leading cause of anxiety and CVD on both genders [8,9]. Poor QoL is one of the most important characteristics of heart failure [10]. Most studies showed that depression and anxiety were associated with poor QoL in patients with heart failure [11]. Out of 200 million population, one out of three are suffering from these curable diseases [12]. CVDs are now the leading cause of death in Pakistan and share the greatest disease burden among populace. Prevalence of these disorders is slightly higher in urban areas as compared to the rural areas [13]. According to research done by Imtiaz Dogar in Pakistan, high prevalence of anxiety and depression is associated with greater risk of morbidity and mortality among cardiac patients. Hence, the timely investigation of anxiety and depression in cardiac patients and their referral to psychiatrists and psychologists can play role in good prognosis of patients [14]. A study was conducted by Kyrouf *et al.*, to find out the association (2002–2012), between CVD incidence with depression and anxiety status among healthy Greek adults. Out of 853 members, 453 men and 400 women without previous history of CVD were recruited to be part of the study. The results revealed that anxiety and depression levels were strongly associated with the disease incidence [15]. A cross sectional study carried out in Afghanistan in 2015–2016 by Hamrah MS

*et al.*, to assess the wide spread interrelationship of depression and anxiety in hypertensive patients with depression and anxiety among adult hypertensive out patient. A total of 234 hypertensive patients were enrolled from which 34.6% were males and 65.4 were females and the average age was 54.6 +12.7 for the hypertensive patient with anxiety and 63.8 +15.0 with depression and 49 +10.2 for general population. It was concluded that depression and anxiety were common in hypertensive patients and further studies were needed and preventive strategies to control psychological problems [16]. Another study was conducted by Kemp *et al.*, in (2006–2007) to determine depression, ailments of anxiety, and discrepancy of heart rate in healthy patient's implication for CVD risk. Major depressive disorder patients of which 24 patients were without anxiety, 24 with general anxiety disorder, 14 with Parkinson Disease and 94 healthy aged people. These people had no previous record of drug abuse, stroke or any other medical problems these four groups had almost same age gender and Body Mass Index. Heart rate variability (HRV) was recorded in these people in resting state condition. The results showed that there was a decrease in HRV in MDD patients than control ones. Those patients with Generalized Anxiety Disorder (GAD) had the greatest decrease in HRV [17]. Hallas CN *et al.*, conducted a cross sectional study at United Kingdom to determine the clinical, psychological variables and QoL among 146 heart failure (HF) patients. The results revealed that negative beliefs about disease outcome were found most among depressed and anxious patients associated with poor QoL [18].

## METHODS

A Cross Sectional study was performed at Sir Ganga Ram Hospital Lahore for a period of 4 months. 100 patients of CVD were selected by non-probability sampling technique. All adults of both genders aged above 18 years having diagnosed CVD attending Tertiary Care Hospital, Lahore were enrolled. Hospital Anxiety and Depression Scale (HADS) was used to measure the anxiety and depression and WHOQOL was used to assess the QoL of patients. Data were collected by pretested questionnaire and analyzed by using Statistical Packages for Social Sciences (SPSS) version 21.

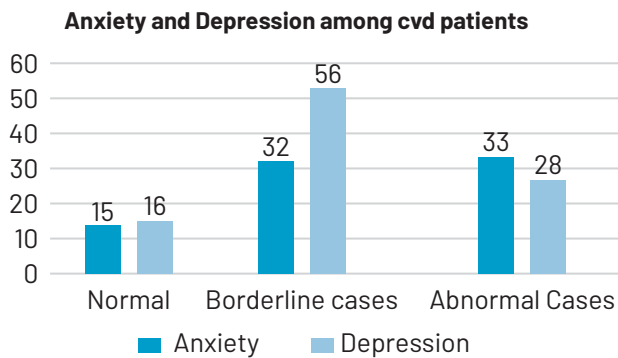
## RESULTS

In current study data was collected from 100 CVD patients. There were 53 males and 47 females. 53 patients were from urban areas and 47 were from rural areas. 46 patients belonged to middle class, 44 patients belonged to lower

class while 12 were from upper class (Table 1). 19 patients were illiterate, 21 patients attended primary school, 37 attended secondary school and 23 attended higher secondary school.

Variables	Descriptives	
Gender	Male	53
	Female	47
Demographic Location	Male	53
	Female	47
Socioeconomic Status	Low	44
	Middle	46
	High	12
Residential Status	Own	60
	Rented	40

**Table 1:** Frequency of Patient's Gender, Socioeconomic status and Demographic Location and Residential Status Analysis showed that CVD patients were mostly suffering from anxiety i.e. 33 falling in the range of abnormally high anxiety, 52 were borderline cases of anxiety while only 15 patients were not having anxiety as shown in Figure 1. While in the case of depression, higher depression was observed among CVD patients i.e. 28 were having abnormally severe depression, 56 were of borderline cases of depression and only 16 were normal as shown in Figure 1.



**Figure 1:** Frequency of cardiovascular patients according to different levels of Anxiety

A strong significant association between social relationships domain of WHOQOL with anxiety and depression and the level of significance was p-values 0.016 and 0.043 respectively. As shown in Table 2

Social relationship Domain				
Variables	Low	Moderate	High	p=value
Anxiety				
Normal	3	9	3	0.016
Borderline cases	18	32	2	
Abnormal cases	19	2	1	

Social relationship Domain				
Variables	Low	Moderate	High	p=value
Depression				
Normal	3	11	2	0.043
Borderline cases	20	32	4	
Abnormal cases	17	11	1	

**Table 2:** Association between Anxiety and Depression on Social Relationship Domain of WHOQOL among Cardiovascular patients

There was insignificant association between Anxiety (P=0.440) and Depression (P=0.809) on Environmental Domain of WHOQOL among CVD patients as shown in Table 3. There was significant association between psychological domain of WHOQOL with depression (P=0.039) while with Anxiety there was insignificant association (P=0.143) as shown in Table 4. There was insignificant association between Anxiety (P=0.835) and Depression (P=0.439) on Physical Health Domain of WHOQOL among Cardiovascular patients as shown in Table 5. There was insignificant Association between educational level, sex, age with QoL, anxiety and depression.

Environmental Domain				
Variables	Low	Moderate	High	p=value
Anxiety				
Normal	10	15	0	0.440
Borderline cases	44	47	0	
Abnormal cases	29	30	1	
Depression				
Normal	15	1	0	0.809
Borderline cases	52	3	1	
Abnormal cases	25	3	0	

**Table 3:** Association between Anxiety and Depression on Environmental Domain of WHOQOL among Cardiovascular patients

Psychological Domain				
Variables	Low	Moderate	High	p=value
Anxiety				
Normal	10	5	0	0.143
Borderline cases	44	7	0	
Abnormal cases	29	4	0	
Depression				
Normal	10	6	0	0.039
Borderline cases	48	7	0	
Abnormal cases	25	3	0	

**Table 4:** Association between Anxiety and Depression on Psychological Domain of WHOQOL among Cardiovascular patients

Physical Health Domain				
Variables	Low	Moderate	High	p=value
<b>Anxiety</b>				
Normal	14	1	0	0.835
Borderline cases	50	2	0	
Abnormal cases	32	1	0	
<b>Depression</b>				
Normal	15	1	0	0.439
Borderline cases	53	3	0	
Abnormal cases	28	0	0	

**Table 5:** Association between Anxiety and Depression on Physical Health Domain of WHOQOL among Cardiovascular patients

## DISCUSSION

The current study was aimed to find the effect of anxiety and depression on QoL among patients with CVD by using HADS to determine the levels of anxiety and depression, whereas cross sectional study done by Frasure-Smith N et al., also used similar scale [19]. A study conducted by Dickens et al., to assess the effect of depression and QoL among heart disease patients and noticed that both depression and anxiety had noteworthy effect on QoL [20]. Present results showed that 53% males and 47% females were suffering from CVD. A study carried out by Lerner DJ et al., showed that the incidence of Coronary Heart Disease (CHD) among men was considerably high than that in women almost a 2:1 ratio of male to female CHD patients in the population [21]. There is a contradiction about the distribution of cardiac disease in male and female genders because different studies showed different results. A study conducted by Maas AH et al., in 2010 [22] showed that CVDs were more common in females than males; however, the risk of heart disease was often underestimated. While study conducted by Ko HY et al., in 2015 showed that there were no gender wise differences [23]. In current results no significant relationship between the level of education and CVD had been established on the other hand, educational level of the patients with CVD was found to be significantly lower. The proportion of male patients was found to be 52.5 % and there was no significant relation between gender and QoL. A study conducted by Çeviker K et al., also revealed similar results [24]. The current study showed that anxiety and depression had been negatively associated with health related QoL. Similar results were found by a study conducted by Lim Let al., in 2012 [25]. The current study showed a strong significant association between social relationships domain of WHOQOL with anxiety and depression and the level of significance was p-values 0.016 and 0.043 respectively. A cross sectional study conducted by Ola BA et al., to evaluate

the relationship between depression and health-related QoL among heart failure (HF) patients and it was found that patients suffering from major depressive disorder MDD had worse QoL on dimensions of psychological health, physical health and environment [26]. Further studies which correlate with current study were Juenger J (2002) and Jiang W (2001) who found that depression is strongly associated with poor QoL in HF patients [27,28].

## CONCLUSION

Study concluded that depression and anxiety is associated with poor QoL among CVD patients. Depression and anxiety were risk factors for health related QoL among CVD patients. In addition, it was concluded that people attending medical care are not being assessed for anxiety, due to lack of facilities and lack of understanding of disease. These factors are responsible for greater mortality and morbidity in CVD patients. The depression and Anxiety are the arbitrating factors and it should be considered in clinical practice to improve QoL of CVD patients. Early diagnosis of these psychological conditions can improve QoL among CVD patients.

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