A STUDY ON ASSESSMENT OF ANXIETY, DEPRESSION AND SLEEP PATTERNS IN PATIENTS WITH CARDIAC DISEASES - AN OBSERVATIONAL STUDY

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ABSTRACT
Background: Significant psychological discomfort and sleep problems are common in patients with heart illnesses, which can worsen their condition and lower their quality of life. The purpose of this study was to evaluate the frequency and intensity of anxiety, sadness, and sleep problems in patients with heart disease and investigate the impact of demographic and illness-specific characteristics. **Methods:** 100 patients with a range of heart conditions were enrolled in this observational study. Data on demographics, disease duration, and specific cardiac conditions were collected and analyzed. The Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Pittsburgh Sleep Quality Index (PSQI) were used to measure anxiety, depression, and sleep quality, respectively. **Results:** According to the study, 75% of the patients had poor to very bad sleep quality, 85% reported mild to severe depression, and 80% of the patients suffered mild to severe anxiety. Longer illness duration, female gender, and older age were all linked to higher levels of psychological discomfort and sleep disruptions. On all scales, patients with cardiomyopathy, congestive heart failure, and myocardial infarction had the highest ratings. The degree of anxiety, depression, and sleep disruptions was strongly connected with the length of heart disease, with patients who had the condition for ten years or longer exhibiting the highest mean scores. **Conclusion:** The results highlight how crucial it is to incorporate evaluations of mental health and sleep quality into standard cardiac care. For patients with heart illnesses, individualized therapies and prompt treatment of psychological discomfort and sleep problems could greatly enhance outcomes and quality of life. To investigate focused interventions and long-term patterns in this population, more study is required.

KEYWORDS: Anxiety, Depression, Sleep disturbances, Cardiac diseases, Myocardial Infarction, Congestive Heart Failure, GAD-7, PHQ-9, PSQI, Chronic illness, Mental health.

INTRODUCTION
Heart conditions continue to be a major global source of illness and mortality, affecting millions of people in various demographics. People who suffer from these illnesses, which include arrhythmias, congestive heart failure (CHF), and myocardial infarction (MI), suffer heavy physical and psychological costs. The psychological and emotional health of heart patients is frequently disregarded, despite improvements in medical treatments and interventions, even though it is vital to their general health and recuperation.

Patients with heart illnesses frequently experience anxiety, depression, and sleep disturbances, which can significantly lower their quality of life. Compared to the general population, cardiac patients have a much greater prevalence of certain psychological problems. In addition to lowering patients' quality of life, anxiety and depression are linked to worse treatment compliance, higher healthcare utilization, and an increased risk of unfavorable cardiovascular events. Insomnia and poor sleep quality are two common sleep disruptions that can worsen the psychological and physical symptoms of heart problems.[1,2,3]

Research show that between 20 and 40 percent of people with heart disease experience anxiety and depression; other research find even higher rates. Patients with heart conditions frequently experience anxiety in the form of excessive health worry, fear of future cardiac events, and worries about functional restrictions. On the other hand, depression, which can be made worse by the chronic nature of heart disease, can manifest as feelings of hopelessness, loss of interest in activities, and continuous melancholy. Anxiety and depression are recognized to be associated with poor cardiac outcomes, such as elevated mortality and morbidity, so the relationship between these psychological disorders and heart health is complicated.

Sleep disruptions provide a significant risk for patients with heart conditions. A higher chance of cardiovascular events and compromised heart function are linked to poor sleep quality. Chronic heart disease-related physiological stress can cause sleep disturbances that exacerbate insomnia and lower overall quality of sleep. Heart patients who experience sleep difficulties may experience increased psychological discomfort, which can lead to a vicious cycle that compromises their physical and emotional well-being.[4,5,6]

When it comes to the frequency and intensity of psychological discomfort in heart patients, age and gender are significant determinants. Higher levels of anxiety and sadness are frequently experienced by older persons with heart issues. This could be because of comorbidities, age-related changes in health, and a decline in social support. Sleep quality and psychological anguish are significantly influenced by the length of heart disease. Prolonged exposure to heart disease symptoms and limits might worsen sadness, anxiety, and insomnia. Long-term cardiac patients may feel more psychologically burdened as they adjust to the continuous care of their illness. Many heart disorders are progressive, which can have a cumulative effect on mental health over time and raise anxiety and depression levels.[7,8,9]

Improving patient care requires an understanding of the frequency and consequences of psychological distress and sleep problems in cardiac patients. It is possible to identify patients who are at risk and facilitate early intervention by incorporating psychological and sleep tests into normal cardiac treatment. Taking care of sleep and mental health problems can improve treatment results overall, increase adherence to prescribed courses of action, and lower the chance of unfavorable cardiovascular events. For cardiac patients, interventions targeted at treating anxiety, depression, and sleep issues can enhance quality of life and promote improved health outcomes.[10,11,12]

AIM
To assess the prevalence and severity of anxiety, depression, and sleep disturbances in patients with various cardiac diseases.

OBJECTIVES
1. To determine the prevalence of anxiety, depression, and sleep disturbances among patients with cardiac diseases using standardized scales (GAD-7, PHQ-9, PSQI).
2. To analyze the influence of demographic factors such as age and gender on the levels of anxiety, depression, and sleep disturbances.
3. To assess the impact of different cardiac conditions (e.g., Myocardial Infarction, Congestive Heart Failure) on the severity of anxiety, depression, and sleep disturbances.
4. To examine the correlation between the duration of cardiac disease and the severity of psychological distress and sleep disturbances
5. To identify potential areas for intervention to improve mental health and sleep quality in patients with cardiac diseases.

METHODOLOGY
Study Site: This study was conducted on patients with cardiac diseases in a tertiary care hospital.
Study Duration: The study is conducted over a period of 6 months.
Study Design: This is a Cross-sectional observational study.
Sample Size: 100 patients different cardiac diseases were enrolled into this study.
Study method: Data were collected on demographic variables (age, gender), duration of cardiac disease, and specific cardiac diagnoses. Psychological distress was assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale for anxiety, the Patient Health

Questionnaire-9 (PHQ-9) for depression, and sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI).

Study Criteria
Inclusion Criteria
1. Adult patients aged 30 years and older, diagnosed with a cardiac condition, and willing to participate in the study.

Exclusion Criteria
2. Patients with severe cognitive impairment or those who declined to participate.

Statistical Analysis
Descriptive statistics were used to summarize the data. Mean scores for anxiety, depression, and sleep disturbances were calculated and compared across demographic groups, specific cardiac conditions, and disease duration.

RESULTS
1. Subject Characteristics.

Subject Characteristics	Category	Frequency (%)
Age (years)	<40	10
	40-49	20
	50-59	30
	60-69	25
	≥70	15
Gender	Male	60
	Female	40
Duration of Cardiac Disease	<1 year	15
	1-3 years	25
	4-6 years	30
	7-9 years	20
	≥10 years	10

This table indicates that the majority of the patients were in the 50-59 age group (30%), followed by the 60-69 age group (25%). There were more male patients (60%) compared to female patients (40%). The highest proportion of patients had been living with a cardiac condition for 4-6 years (30%).

2. Distribution of Cardiac Diseases

Cardiac Disease	Frequency (%)
Coronary Artery Disease (CAD)	25
Hypertensive Heart Disease	20
Congestive Heart Failure (CHF)	15
Atrial Fibrillation	10
Valvular Heart Disease	10
Cardiomyopathy	10
Myocardial Infarction (MI)	10

Coronary Artery Disease (CAD) was the most common cardiac condition (25%), followed by Hypertensive Heart Disease (20%) and Congestive Heart Failure (CHF) (15%).

3. Distribution of GAD-7, PHQ-9, and PSQI Scores

Scale	Score Range	Frequency (%)
GAD-7 (Anxiety)	0-4 (Minimal)	20
	5-9 (Mild)	40
	10-14 (Moderate)	30
	15-21 (Severe)	10
PHQ-9 (Depression)	0-4 (Minimal)	15
	5-9 (Mild)	35
	10-14 (Moderate)	35
	15-19 (Moderately Severe)	10
	20-27 (Severe)	5
PSQI (Sleep Quality)	0-5 (Good)	25
	6-10 (Poor)	50
	11-15 (Very Poor)	25

This table indicates that the majority of patients (40%) had mild anxiety, while 30% experienced moderate anxiety. Most patients had mild to moderate depression (70% combined). Half of the patients (50%) had poor sleep quality.

4.   Age vs. Mean Scores of GAD-7, PHQ-9, and PSQI.

Age Group (years)	GAD-7 Mean ± SD	PHQ-9 Mean ± SD	PSQI Mean ± SD
<40	6.2 ± 2.3	7.1 ± 2.8	5.9 ± 2.1
40-49	7.5 ± 3.0	8.2 ± 3.0	6.4 ± 2.4
50-59	8.3 ± 3.2	9.1 ± 3.2	7.2 ± 2.5
60-69	9.1 ± 3.5	9.8 ± 3.4	7.8 ± 2.6
≥70	9.7 ± 3.7	10.4 ± 3.5	8.1 ± 2.7

Anxiety, depression, and sleep disturbances tend to increase with age. Patients aged ≥70 years had the highest mean scores for anxiety (9.7), depression (10.4), and poor sleep quality (8.1).

5.   Gender vs. Mean Scores of GAD-7, PHQ-9, and PSQI.

Gender	GAD-7 Mean ± SD	PHQ-9 Mean ± SD	PSQI Mean ± SD
Male	7.8 ± 3.1	8.4 ± 3.1	6.8 ± 2.4
Female	8.5 ± 3.4	9.2 ± 3.3	7.4 ± 2.6

Female patients had slightly higher mean scores for anxiety (8.5), depression (9.2), and poor sleep quality (7.4) compared to male patients.

6.   Cardiac Disease vs. Mean Scores of GAD-7, PHQ-9, and PSQI

Cardiac Disease	GAD-7 Mean ± SD	PHQ-9 Mean ± SD	PSQI Mean ± SD
Coronary Artery Disease (CAD)	7.5 ± 3.0	8.2 ± 3.0	6.5 ± 2.3
Hypertensive Heart Disease	7.8 ± 3.2	8.6 ± 3.2	6.9 ± 2.5
Congestive Heart Failure (CHF)	8.4 ± 3.3	9.0 ± 3.3	7.3 ± 2.6
Atrial Fibrillation	8.5 ± 3.4	9.3 ± 3.4	7.5 ± 2.6
Valvular Heart Disease	8.2 ± 3.2	8.8 ± 3.2	7.2 ± 2.5
Cardiomyopathy	8.7 ± 3.5	9.5 ± 3.4	7.6 ± 2.6
Myocardial Infarction (MI)	8.9 ± 3.6	9.7 ± 3.5	7.8 ± 2.7

Patients with Myocardial Infarction (MI) had the highest mean scores for anxiety (8.9), depression (9.7), and poor sleep quality (7.8), indicating a greater psychological and sleep burden in this group.

7.   Duration of Disease vs. Mean Scores of GAD-7, PHQ-9, and PSQI

Duration of Disease (years)	GAD-7 Mean ± SD	PHQ-9 Mean ± SD	PSQI Mean ± SD
<1 year	6.5 ± 2.5	7.3 ± 2.9	6.0 ± 2.2
1-3 years	7.6 ± 3.0	8.4 ± 3.1	6.8 ± 2.4
4-6 years	8.4 ± 3.2	9.1 ± 3.3	7.2 ± 2.5
7-9 years	8.9 ± 3.4	9.7 ± 3.4	7.6 ± 2.6
≥10 years	9.3 ± 3.6	10.2 ± 3.5	8.0 ± 2.7

Patients with a longer duration of cardiac disease tend to have higher levels of anxiety, depression, and sleep disturbances. Specifically, patients with a disease duration of 10 years or more had the highest mean scores for anxiety (9.3), depression (10.2), and poor sleep quality (8.0).

DISCUSSION

This observational study evaluated the frequency and severity of sleep problems, depression, and anxiety in patients with different heart conditions. The findings highlight the substantial psychological impact and sleep disturbances these patients endure, which differ according on age, gender, heart disease type, and length of illness.

Prevalence of Anxiety, Depression, and Sleep Disturbances

With 80% of patients expressing mild to severe anxiety (GAD-7 scores) and 85% reporting mild to severe depression (PHQ-9 scores), the study population's prevalence of anxiety and depression was found to be quite high. Furthermore, according to the PSQI, 75% of the patients experienced poor to extremely bad sleep quality. These findings are consistent with previous research demonstrating the high incidence of psychological discomfort among individuals with long-term cardiac problems.

Impact of Age and Gender on Psychological and Sleep Health

Age-related rises in depression, anxiety, and sleep disruptions were found in the analysis, with individuals 70 years of age and above exhibiting the highest mean scores. This pattern might be the result of age-related variables such comorbidities, physical aging, and diminished social support, which all increase the cumulative impact of having a chronic illness.

Another finding was that patients' genders varied as well; females reported slightly higher degrees of anxiety, depression, and sleep disruptions than males. This result is in line with other research that has demonstrated women are more prone than males to experience psychological discomfort, maybe as a result of variations in coping mechanisms, gender-specific stressors, and hormonal differences.

Duration of Disease and Its Correlation with Psychological and Sleep Health

The study's key finding was the positive relationship between the degree of depression, anxiety, and sleep problems with the duration of cardiac illness. The highest mean scores for all three measures were found in patients whose disease had been active for ten years or more. This implies that the psychological burden increases with the length of time a patient has a cardiac issue. This could be because chronic sickness management is difficult, long-term drug use has negative effects, and many heart disorders are progressive.

Impact of Specific Cardiac Diseases on Psychological and Sleep Health

Patients with Myocardial Infarction (MI) had the highest mean ratings for anxiety, depression, and sleep disturbances among the cardiac illnesses evaluated. MI is frequently linked to an abrupt and traumatic beginning, which can cause intense emotional anguish and a dread of recurrence. This could account for the group's increased psychological burden. Likewise, those suffering from ailments like Cardiomyopathy and Congestive Heart Failure (CHF) demonstrated elevated degrees of anguish, probably because these disorders are crippling and advance over time.

CONCLUSION

The substantial burden of depression, anxiety, and sleep difficulties among patients with heart illnesses is brought to light by this study, underscoring the importance of providing patients with comprehensive care that takes into account both their physical and mental health. The results show that poorer sleep quality and higher levels of psychological distress are linked to older age, female gender, and longer duration of heart disease. Individuals with certain disorders, such as congestive heart failure and myocardial infarction, demonstrated exceptionally high scores, suggesting the significant influence of these circumstances on psychological health. According to these findings, regular sleep and psychological evaluations ought to be included into cardiac care in order to enhance patient outcomes. The psychological and sleep-related difficulties may be lessened with early intervention and customized treatment plans, which would ultimately improve the general quality of life for heart patients.

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