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Research Article

PREVALENCE OF DEPRESSION IN PATIENTS WITH CORONARY ARTERY DISEASE AND ITS ASSOCIATION WITH AGE AND GENDER

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Abstract:

Introduction: Depression is an acute mental disorder in which melancholic mood is accompanied by a sense of worthlessness and impracticality along with lack of desire to indulge in formerly pleasurable activities. There is malicious sequence of events and clinical evidence that associates Coronary Artery Disease (CAD) to depressive disorder and counters wise.

Objective: To assess the frequency and severity of depression in known cases of Coronary Artery Disease and to determine its association with age and gender.

Methods: This 9-months descriptive cross-sectional study was conducted on patients with diagnosed Coronary Artery Disease, presenting in Rawalpindi Medical University (RMU) Allied Hospitals and Rawalpindi Institute of Cardiology (RIC) from December 2018 to May 2019. All the male and female patients who had been diagnosed as a case of CAD for 2 weeks or more, and were admitted in the Cardiology wards and those visiting OPD for follow-up check up were included. All those patients who had already been diagnosed with any other mental disease were excluded. They were assessed using PHQ-9 by one to one interview. Data was analyzed by SPSS v23.0 and p-value was considered significant.

Results: Out of total 385 patients with diagnosed CAD, 244 (63.4%) were males and 141 (36.6%) were females. The overall prevalence of depression was 65.19%. Mean age was 53.6±14.14 years. Depression was significant when measured across gender with P=0.031. Depression was insignificant when measured across age groups with P=0.14. Out of total 385 patients, 134 (34.80%) did not have depression whereas 135 (35.10%) had mild depressive symptoms. Moderate depression was found in 73 (19%), moderately severe in 35 (9.1%) and severe depression in 8 (2.1%). Cronbach's Alpha test was applied and its value was 0.859 showing its validity in our population.

Conclusion: Total prevalence of depression in CAD patients was 65.19% and distribution of total score was significant between males and females with severe depression statistically significant in males. Cronbach's Alpha test was also applicable implicating the validity of PHQ-9 in our population.

Keywords: malicious sequence, depressive disorder, Coronary Artery Disease.

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INTRODUCTION:

Depression is an acute mental disorder in which melancholic mood is accompanied by a sense of worthlessness and impracticality along with lack of desire to indulge in formerly pleasurable activities [1]. The cardinal cause of depressive disorder may be a perilous life occurrence such as a heart attack, which, due to its prevalence and adverse effects, is the leading cause of death worldwide [2]. A heart attack can influence negatively a patient's personality matrix and induce self-doubt, worsened attitude and mood, and an invariable guilt regarding past detrimental habits [3].

There is a malicious sequence of events and clinical evidence that associates Coronary Artery Disease (CAD) to depressive disorder and counter wise, depressive disorder to CAD. Both these diseases have great socio-economic and socio-demographic significance given that they carry two-thirds of the global burden of death [4]. The behavioral and physiological risk factors associated with CAD e.g. smoking, diabetes, hypertension, obesity and physical inactivity also contribute to depressive disorder; thus speculating depression as an antecedent risk factor for heart disease and vice versa; although the converse is controversial as symptoms of depression may go undiagnosed prior to the development of heart problems [5].

This lethal correlation between depression and CAD is affecting the human race globally. A study was conducted demonstrating that round about 20% to 40% of the cardiac patients fulfill the criteria for major depressive symptoms or encounter a rise in depressive symptoms [6]. A study was conducted in China to find out the prevalence of depression which was 51% [7] overall in hospitalized CAD patients. A similar study was conducted in Iran. The results showed that the total prevalence of depression in CAD patients in Iran was 47% [8].

In Pakistan, the population has an increased liability for developing cardiovascular disease (CVD) owing to the risk factors, genetic susceptibility and sedentary lifestyles [9]. These CVD patients are more prone to suffer from depression due to multiple factors including low income, lesser education, sole breadwinner, hypertension etc as suggested by a study conducted in Karachi indicating point prevalence of depression in the sample to be 37% (31.3% males and 53.8% females) [10]. Treating physicians especially Cardiologists should be aware of this co-morbidity for timely management of such cases. This study was conducted to assess the

frequency and severity of depression in known cases of Coronary Artery Disease. The results generated not only reveal the undetected depression in these patients but can also be beneficial in devising policies for regular screening of patients for depression, so that they can be managed and treated adequately to circumvent further decline in their health.

MATERIALS AND METHODS:

This descriptive cross-sectional study was conducted on patients with diagnosed Coronary Artery Disease, presenting in Rawalpindi Medical University (RMU) Allied Hospitals and Rawalpindi Institute of Cardiology (RIC) from December 2018 to May 2019. The patients were selected by non-probability consecutive sampling. Diagnosis of depression in CAD patients was made by using Patient Health Questionnaire (PHQ-9) [11]. The diagnosis was made according to the standard scoring of PHQ-9 as none (0-4), mild (5-9), moderate (10-14), moderately severe (15-19) and severe (20-27) depression.

All the male and female patients who had been diagnosed as a case of CAD for 2 weeks or more, and were admitted in the Cardiology wards and those visiting OPD for follow-up check up were included. All those patients who had already been diagnosed with any other mental disease were excluded. Data was analyzed by SPSS version 23. Frequency and percentages were calculated for variables like age, gender, severity of depression etc. Chi Square test was applied to determine the significance of severity of depression across gender and age groups; one group with age ≤ 50 years and one group with age > 50 years. The value of $p \leq 0.05$ was considered significant.

RESULT:

Of the 385 patients identified as being eligible for participation in the study, depression was found in 251 (65.19%) patients whereas 134 (34.80%) did not show any symptoms of depression. Patients were predominantly males ($n=244$). Mean age calculated by our study is found to be 53.6 ± 14.14 years. The value of Cronbach's Alpha test was 0.859. Smokers and alcohol users were not common among participants.

Out of the total 244 (63.38%) males, 148 (60.66%) had depressive symptoms; whereas 103 (73.05%) out of the total 141 (36.62%) females had depression (Table 1). Depression was significant when measured across gender with $P=0.031$. Depression was more prevalent in ≤ 50 years age group (59.48%) as compared with age group > 50 years (40.5%)

(Table 1). Depression was insignificant when measured across age groups with $P=0.14$.

Table 1. Demographic distribution of Coronary Artery Disease (CAD) patients according to gender, age and severity of the disease;

N= Total number of CAD patients

	Frequency (N = 385)
Gender	
Male	244 (63.38%)
Female	141 (36.62%)
Age	
≤ 50 years	229 (59.48%)
> 50 years	156 (40.52%)
Severity of depression	
None	134 (34.80%)
Mild	135 (35.10%)
Moderate	73 (19%)
Moderately severe	35 (9.10%)
Severe	8 (2.10%)

The prevalence of each of the nine PHQ-9 depression scale indicators was as follows :

Little interest/ pleasure in doing anything 162 (42.07%), feeling down 245 (63.63%), disturbed sleep 241 (62.59%), tiredness 295 (76.8%), poor appetite/ overeating 201 (52.2%), feeling of self failure 115 (29.87%), thoughts of self harm 153 (39.74%) and apathy 256 (66.49%). 276 (71.68%) people admitted to increased difficulty of life after developing the disease. The severity of depression was investigated by applying PHQ-9 which showed that out of the total 385 patients, 134 (34.8%) had no depression, 135 (35.1%) had mild depression, 73 (19%) had moderate depressive symptoms, 35 (9.1%) showed symptoms of moderately severe depression and 8 (2.1%) had severe depression (Table 2).

Table 2. Comparison of degree of depression among gender and age groups.
n= Number of CAD patients

Degree of depression		None n= 134	Mild n= 135	Moderate n= 73	Moderately Severe n= 35	Severe n=8	Total n= 385	P-value
Gender	Male	96 (71.64%)	75 (55.56%)	50 (68.49%)	16 (45.71%)	7 (87.5%)	244 (63.38%)	0.031
	Female	38 (28.36%)	60 (44.44%)	23 (31.50%)	19 (54.28%)	1 (12.5%)	141 (36.62%)	
Age groups	≤50	90 (67.16%)	71 (52.59%)	44 (60.27%)	19 (54.28%)	5 (62.5%)	229 (59.48%)	0.14
	>50	44 (32.84%)	64 (47.41%)	29 (39.73%)	16 (45.71%)	3 (37.5%)	156 (40.52%)	

DISCUSSION:

Depression and Coronary Artery Disease are both highly prevalent disorders and both of them cause a significant decrease in quality of life [5]. Among our study population of 385 patients, 251 (65.19%) had depression while the remaining 134 (34.80%) showed no signs of depression. Contrary to this, a study conducted in Karachi showed a point prevalence of 37% [10] while another study documented a prevalence of 17-47% [12]. Various other studies reported the prevalence of depression in coronary artery disease patients to be 36.5% [13] and 19.8% [14]. The considerably high prevalence in our study might be due to differences in the socioeconomic status and different lifestyles of the participants. A study conducted in Karachi showed depression to be more prevalent in females (53.8%) as compared to males (31.3%) [10]. Another study showed that 70% of women with CAD had depression in contrast to 30% of men with CAD [15]. Our study had results consistent with them showing 68.79% prevalence in women as compared to men. This increased prevalence among females may be due to the impact of differences in socioeconomic factors including abuse, education and income [16]. Our study showed depression to be more prevalent in the age group ≤50 years of age which is consistent with the results of another study showing depression to be more prevalent in age group less than 55 years [17]. Mean age calculated by our study is found to be 53.6±14.14 years which is consistent with the study

results of a foreign research which reported the mean age to be 59 years [6]. Another study depicted the mean age to be 49.5±12 years [18] which too, is in accordance with our results. Studies showed hypertension, diabetes and central obesity to be increasingly associated with depression in CAD patients [9] while our study didn't include these parameters. Our study also showed the standard questionnaire for depression (PHQ-9) to be valid in our region (Cronbach's Alpha= 0.859) while no other study confirmed the validity of their questionnaires in the respective regions.

CONCLUSION:

Total prevalence of depression in CAD patients was significantly high and depression was significant between males and females. Cronbach's Alpha test was also applicable implicating the validity of PHQ-9 in our population.

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