A Study of New Variables of Psychological Cognitive-State in Patients among Cardiac Diseases

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Abstract:- **The significance of psychosocial factors in the growth and phrase of heart disease has been argumentation; a wide current literature at the present establishes that psychosocial factors add extensively to the pathogenesis of cardiac heart disease and require to be measured in the jeopardy stratification and treatment of patients with cardiac heart disease. The major objective of this study is to search out the psychiatric correlates of CHD. For this, sets of psychological inventories are used, which determine seven psychological variables. To abridge the task, two types of group assessment were made. In the primary type, the total sample (450) was separated into three groups, that is, CHD group (350), non-cardiac group (50), and standard group (50). In the secondary type, the CHD group was auxiliary separated into seven groups (50 each) based on the diagnosis and was compared with the non-cardiac and standard groups. It was found that cardiac subgroups have homogeneity and heterogeneity amongst themselves. Cardiac subgroup showed some homogeneity with the standard and non-cardiac groups as well. Findings implies that the cardiac group obtained super-ordinate rating in family stress, personal stress, extroversion–introversion, neuroticism, and depression and incline rating in social stress when compared with the standard and non-cardiac groups. In conclusion, super-ordinate rating in family stress, personal stress, extroversion–introversion, neuroticism, and depression are the significant variables to envisage an individual to have the tendency of CHD. Association of psychological factors in CHD is factual, not a fable.**

Key Words: **Cardiac disease, stress, depression, extroversion–introversion, neuroticism**

I. INTRODUCTION

The death rate due to cardiac diseases has declined significantly in the US in the last 15 years even as it continues to rise in India with cardiovascular diseases being the leading cause of death, underlining the need for the country to adopt population-level strategies to reduce risk factors (Sushmi Dey, 2018)

The death rate due to cardiac heart disease (CHD) declined by a significant 41 per cent in the US between 1990 and 2016, whereas in India it rose by around 34 per cent from 155.7 to 209.1 deaths per one lakh population in the same period, says a new international study published by Elsevier in the Journal of the American College of Cardiology.

The elevated co morbidity among psychiatric disorders and CHD has established rising attention in current scientific literature (Evans D.L., Charney D.S., 2003), (Rozanski A., Blumenthal J.A., 1999). Various studies findings disclose that mood and anxiety disorders are influencing CHD and are upper risk factors for cardiovascular-related morbidity and mortality (Musselman D.L., Evans D.L., 1998), (Kawachi I., Sparrow D., 1994) and (Bauer L.K., Caro M.A., 2012).

Depression in cardiac disease is general, importunate, under recognized, and related with worse health-related eminence of life, recurrent cardiac events, and mortality (Celano C.M., Huffman J.C., 2011). Depressive symptoms have also been found to predict coronary heart disease (CHD) in cronies not primarily presenting cardiac symptoms (Ford D.E., Mead L.A., 1998) and (Pizzi C., Manzoli L., 2008).

Psychological stress is one of the significant factors for CHD. It has been associated to elevated rates of morbidity and all cause mortality and is recognized as a risk factor for other health conditions. Acute stress influences heart rate and blood pressure (Carney R.M., Freedland K.E., 2003). The patients with cardiac disease were through emotionally susceptible by incessant physical anxiety, fear of life, irritability, and pessimism. They demonstrate several pessimistic individuality such as easy susceptibility to family, social, and personal stress, and lack of objectivity and stability.

Even though the associations between psychological and cardiac functions remain a matter of curiosity, many of the gaps in scientific knowledge are beginning to be filled. Most common risk factors for CHDs are smoking, lack of exercise, obesity, and hypertension. It has been suggested that not all patients with CHD have one of the established coronary risk factors mentioned above and 10%–35% lack any of them (Chopra S., Sharma A., 2011) These findings have led to a search for potential novel markers and other nontraditional risk factors to provide a better assessment of the cardiovascular risk.

Among the most important novel and nonconventional risk and prognostic indicators were psychosocial variables such as depression, hostility, personality, lack of social support, stress, low socioeconomic status, trait personality, and temperament. This study was aimed to observe the association between novel psychiatric inventions in CHDs.

II. METHODOLOGY

The samples for this study were collected from specialty clinic OPDs, MNR Medical College & Hospital, Nagpur, and

different hospitals of Aurangabad city, Maharashtra, India, during the one year period from January 2018 to December 2018. Patient data were collected from hospitals and each patient was evaluated by a consultant cardiologist. A typical questionnaire was prepared for the data collection and permission was taken from every patient.

Chosen subjects were separated into three groups. The primary group comprised patients with CHD. Because of the broad limitations, CHD cannot be examined as a single unit. Hence, seven cardiac disease types were included in this category, such as atherosclerosis (ATH), myocardial infarction (MH), angina (AH), essential hypertension (EH), arrhythmia (ARH), endocarditis (EC), and pericarditis (PC). Fifty patients from each of these cardiac disease types were chosen based on the diagnosis of specialist cardiologists to compose the cardiac disease group.

The secondary group consists of patients with non-cardiac diseases. Fifty patients with diseases other than CHDs were randomly chosen to be incorporated in this group. Patients with a history of CHD were disqualified from this group. The third group was a control group, which consist of 50 normal persons. Persons with a history of any foremost disease were disqualified from this group.

In this study, three standardized inventories' schedule has been utilized under which seven emotional variables were studied. The variables are as follows:

1. Stress: Occupational stress, Family stress, social stress and personal stress
2. Depression
3. Personality inventory: Extroversion- Introversion and neuroticism

Table 1: Mean and standard deviation (SD) values of all variables in different cardiac disease groups compared with the two control groups

Variables	Control	Noncardiac	MH	AH
Family stress	26.98 ± 5.18	31.02 ± 8.16	38.98 ± 8.38	34.90 ± 8.25
Social stress	31.04 ± 9.37	32.98 ± 7.74	33.02 ± 6.13	28.62 ± 8.80
Personal stress	32.01 ± 10.03	33.98 ± 7.64	41.03 ± 5.98	37.50 ± 8.08
Occupational stress	27.96 ± 10.51	31.32 ± 9.02	32.84 ± 9.95	27.76 ± 8.02
Extroversion–introversion	11.98 ± 2.79	12.97 ± 2.23	15.03 ± 2.58	14.02 ± 3.10
Neuroticism	11.32 ± 6.05	13.01 ± 3.42	12.05 ± 4.07	12.10 ± 4.82
Depression	27.04 ± 6.02	31.02 ± 7.32	31.59 ± 5.55	29.48 ± 6.85

Myocardial infarction (MH), angina (AH)

Table 2: Mean and standard deviation (SD) values of all variables in different cardiac disease groups compared with the two control groups

Variables	EH	ARH	ATH	EC	PC
Family stress	30.04 ± 3.76	35.90 ± 7.04	34.88 ± 11.04	31.76 ± 13.77	27.08 ± 5.17
Social stress	26.58 ± 3.90	31.84 ± 8.21	30.24 ± 6.74	35.91 ± 9.48	26.36 ± 3.04
Personal stress	40.14 ± 5.76	38.06 ± 6.99	38.62 ± 7.17	38.26 ± 12.82	37.78 ± 4.52
Occupational stress	26.26 ± 7.27	33.92 ± 7.24	30.50 ± 7.70	33.46 ± 11.96	28.62 ± 7.09
Extroversion–introversion	12.56 ± 2.81	14.88 ± 4.58	13.84 ± 4.05	14.18 ± 3.19	13.74 ± 2.51
Neuroticism	17.04 ± 2.21	12.56 ± 4.01	11.00 ± 3.90	14.62 ± 4.49	14.32 ± 3.38
Depression	33.64 ± 5.39	30.38 ± 5.33	29.98 ± 5.10	35.14 ± 9.82	30.28 ± 4.92

Atherosclerosis (ATH), Essential hypertension (EH), arrhythmia (ARH), Endocarditis (EC), Pericarditis (PC).

III. RESULT

This study intended to find out the psychological correlates of CHDs. The mean values of all the variables were compared on the basis of patient groups. The results were as well compared with the two control groups (table 1 and table 2).

Age has a foremost role in molding the eccentricity of any personage. Usually, populaces have precise behavior patterns at diverse age levels. To an immense level, the behavior of a personage is predisposed by their age.

In this research, sample distribution with reverence to age in diverse group shows that majority of the patients among myocardial infarction (MH) fall under the age group of 51–60 and 61–70 years, and the patients among AH and EH fall in the range of 51–60 years. Patients among hypertension and PE were found to be in the age sort of 41–50 years. Similarly, patients among ARH and ATH fall in the age group of 31–40 and 31–50 years, correspondingly.

The standard group comprising 50 patients includes 25 male and 25 female. Thirteen patients are below 30 years, 27 between 31 and 49 years, and 10 in the age group of 51–70

and above. The non-cardiac group also comprised 25 male and 25 female.

IV. DISCUSSION

This research implies that the cardiac group secured higher score than the standard and non-cardiac groups in five of seven variables. The variables comprise family stress, personal stress, extroversion–introversion, neuroticism, and depression; lower scores have been reported in social stress. The values of family stress are not significant between cardiac and non-cardiac groups and significant between normal and cardiac groups. The ATH group differs significantly on the variable social stress from the ARH, PC, and EC groups. The non-cardiac group differs significantly from the ARH and PC groups. The normal group differs significantly from the ARH group alone. Orth-Gomer et al. (Orth-Gomer K, Rosengren A., 1993) showed that attachment and social integration were lower in patients with CHD. This is contradictory to the result of this research.

Outcome demonstrates significant difference among the various groups in the variable personal stress. The non-cardiac group does not reveal any significant difference. Study in this area by Shukla (Shukla P.R., 1989) and Stein et al. (Stein D., Troudart T., Hymowitz Z., Gotsman M., 1990) supports the result of this research, in which the three groups, namely standard, non-cardiac, and cardiac, do not differ significantly in the consequence of occupational stress.

It was originated that cardiac group showed further extroverted traits than the standard and non-cardiac groups. Among the cardiac group, EC group scored utmost followed by the MH and ATH groups. Detailed examination by Shukla (Shukla P.R., 1989) showed that AH and MH groups did not have any significant difference on extroversion–introversion and neuroticism magnitude of personality. Emotionally over responsive persons are more prone to be neurotic. PE group had maximum score for neuroticism followed by the ATH, ARH, and EH groups. Shukla (Shukla P.R., 1989) proved that the patients among CHD differ significantly on neuroticism from the general population. This is in conformity with the present outcome and at the similar time asserts that patients with cardiac diseases include neurotic personality traits.

The cardiac and noncardiac groups vary from the normal group on the variable depression. Depression is an independent risk factor for CHD and for cardiac cognitive-state and fatality after myocardial infarction (Gorman J.M., Sloan R.P., 2001). Clinical depression is a stronger interpreter of CHD than is just a depressed mood (Rugulies R., 2002).

Moreover the diagnosis of substantial symptoms, a apparent dimension of these psychological variables should as well be conducted to increase the effectiveness of treatments. Beside among recommendation of medicines, psychotherapy to the patients to create them awake of the psychological impact of their physical ailments should also be done. Even if diagnosis is complicated because the physical symptoms are non-evident or remain restrained, an examination of psychological variables and their dimension might facilitate the physician to recognize cardiac disease group.

V. CONCLUSION

Result of the research concludes that family stress may source CHDs. Social stress demonstrates fewer impact on CHDs as compared to other variables. Individual stress may cause CHDs. Persons experiencing elevated occupational stresses are fewer flat to CHDs. Patients with cardiac disease are normally extroverts. Dominating conviviality can lead to cardiac diseases. People among dominating neuroticism may conclude with cardiac diseases. Patients among cardiac diseases prove neurotic tendencies. They are vulnerable to depression. The relationship of physical and psychological factors in the progression of CHDs is a fact and not a fable.

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