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Comparative analysis of psychological distress factors on CHD and non-CHD patients

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***Abstract*---**The study was undertaken to determine Comparative Analysis of Psychological Distress Factors on CHD and Non- CHD Patients During COVID-19 in Adults. Three different areas were taken to get the subjects of CHD patients viz. Delhi, Haryana, and Punjab from hospitals. One hundred subjects were taken (50 subjects from the CHD group, 50 subjects from the non-CHD group) randomly and were matched in age, sex, education, and occupation. Psychological well-being scale, Anxiety Depression Stress Scale was employed with each of these subjects in two sessions. Results reveal that the CHD patients showed grossed psychological well-being deterioration and anxiety, depression, and stress dimension. The CHD patients showed these results due to their preoccupation with CHD problems. It can directly change their psychological profile. It is also obviously felt that the COVID-19 pandemic has a more severe effect on their mental health thannon-CHD patients. This study aims to investigate a Comparative Analysis of Psychological Distress Factors on CHD and non- CHD patients during COVID-19 in adults.

***Keywords*---**CHD patients, distress, psychology.

Introduction

Increasing mortality rates of cardiovascular disease is a matter of global concern. As per the latest reports of the world health organization, 32% of all the global deaths were due to cvds. 85% of these deaths were primarily due to stroke and heart attack. Coronary heart disease is the most common CVD, contributing to nearly half of the total deaths caused due to cvds. Understanding the relationship between CHD and psychosocial factors has been a topic of interest for related research for more than a few decades. These factors are crucial aspects of health and their correlation(Nehra et al., 2012). Coronary heart disease is developed when the arteries cannot deliver enough oxygen-rich blood to the heart. Our lifestyle mainly affects heart health and eventually blood flow and its pressure. The incapability of arteries to not deliver blood to the heart is due to the altered pressures of blood. Which is directly correlated with lifestyle habits and these

habits are affected by mental health as it affects daily living, relationships, and physical health. These factors can directly affect both biological pathways and indirectly through risky health behaviors.

Additionally, the treatments for diabetes, hypertension, high blood, lipids, and the treatment options available for mental health disorders can also impact cardiometabolic disease risk. The usage of some antipsychotic medications has been linked with obesity, insulin resistance, diabetes, heart attacks, atrial fibrillation, stroke, and death. Depression is a mood-related disorder. Anxiety is characterized by tension, worried thoughts, and physical changes like increased blood pressure. Anxieties nowadays revolve around money, work, family life, health, and other related crucial issues that need a person's attention without particularly requiring the 'fight-or-flight' reaction. When a person experiences changes or challenges (stressors), the body produces physical and mental stress responses that help the body adjust to new situations.

Nevertheless, stress becomes a severe problem when it continues without relief or periods of relaxation. Continued activation of the stress response causes damage to the body when a person has long-term (chronic) stress. Depression, anxiety, and stress over the long term may have specific physiological effects on the body, like increased cardiac reactivity (e.g., elevated heart rate and blood pressure), decreased blood flow to the heart, and raised cortisol levels. Psychological well-being refers to cumulative cognitive, behavioral, and emotional well-being. (Bradt et al., 2013)found out that listening to music may positively affect stress and anxiety in CHD patients. In particular, this is a positive effect seen in the people involved with myocardial infarction. A metanalysis studied the connection between depression, anxiety, stress, and cardiovascular diseases and concluded that mental health problems are risk factors for the development and progression of cardiovascular diseases(Cohen et al., 2015). Mental illness and psychological distress conditions are commonly observed in people affected by coronary heart diseases. They concluded that mental and psychological disorders and CHD have a common etiology, including disease biology, genetic, psychological, and behavioral mechanisms(Hert et al., 2018). A study shows that those with long-term, intimate relationships may influence the motivation for changing lifestyle among people with CHD. It also explores the relationship between the people with CHD and those closest to them in making lifestyle changes. A study done to know the relationship between the cardiovascular diseases associated with stressful events like depression, anxiety, and stress, resulted in no clear pattern of stressful events and incidences of myocardial infarction. However, they observed an increase in the symptom scores of CHD conditions during stressful events(Hahad et al., 2021). A metanalysis study determined the efficiency of exercise therapy concerning anxiety and depression among CHD patients, concluding that exercise therapy significantly lowers the anxiety and depression symptoms in CHD patients. They derived that exercise therapy improves coronary heart disease patients (Wang et al., 2021). The relationship of medical adherence in CHD conditions with psychological distress over time. They observed that medication adherence is very adversely affected by psychological distress. This distress harms the overall medical condition of CHD patients. Their study concluded that it is necessary to track different forms of psychological distress among CHD patients (Fan et al., 2021). The impact of COVID-19 first wave on the

care provided to children and adults with coronary heart disease. The study's findings stated that this pandemic had cut the communication lines, and hence the patients did not receive good care, which eventually caused them stress and depression. Along with such a tough time, their medical condition also got challenging, causing them anxiety and other psychological stressful situations(Wray et al., 2021).The purpose of this study is to learn about the association of various psychological distress factors (depression, anxiety & stress) and coronary heart diseases (CHD) in adult patients, comparison of the various psychological factors among CHD & Non- CHD adult patients, and the impact of stress, anxiety & depression on individual well-being in the pandemic times. The present study's findings will provide a comprehensive framework for managing patients with coronary heart disease in different psychosocial aspects after the covid-19 pandemic. The findings may also be taken as an intervention at the local and national levels. Government and non-government agencies can implement the present study's findings to better CHD patients under stressful conditions.

Objectives of the study:

1. To study the association of various psychological distress factors (depression, anxiety & stress) and Coronary Heart Diseases (CHD) in adult patients.
2. To compare the various psychological factors (Depression, Anxiety & Stress) among CHD & Non- CHD adult patients.
3. Impact of Stress, Anxiety & Depression on individual psychological well-being in the pandemic times.

Hypothesis of the study

Depending upon the objective of this study, a particular hypothesis can be derived, and it includes the following points:

1. There is no significant relationship of psychological distress factors (Depression, Anxiety & Stress) between CHD & Non-CHD patients.
2. There is no profound difference in psychological distress factors (Depression, Anxiety & Stress) between CHD & Non-CHD patients.
3. There is no significant impact of Stress, Anxiety & Depression on individual psychological well-being in the pandemic time.

Research Methodology

Variables: In the study, CHD & Non-CHD patients and Psychological Well-Being are considered independent variables. Psychological Distress factors (Anxiety, Depression, and Stress) are considered dependent variables, so six variables would be regarded as this present study's total.

Sample: The sample consisted of 100 participants, irrespective of the gender difference, selected randomly, out of which 50 patients will be CHD, and 50 will be Non-CHD patients. Random sampling has been taken.

Inclusion Criteria: One hundred subjects were taken.Fifty have been taken from the CHD group, and 50 have been taken from the non-CHD group.Issues were

from middle socioeconomic status.All the problems we're able to read and write English.

Exclusion Criteria: Subjects from upper socioeconomic status and low socioeconomic status were excluded.Subjects having psychological problems have been excluded from this study.Topics with no education have been excluded from this study.

Measuring tools

Anxiety, Depression, Stress Scale (ADSS): This scale is used to assess the subject's anxiety, depression, and stress using anxiety, depression, and stress scale (ADSS). This scale was developed by Megha Singh &pallavibhatnagar in 2016. The reliability (Test/Retest) of this scale is 0.71 and construct validity is 0.74. This scale comprises 48 items divided into three subscales: Anxiety, Depression & Stress. Each item is scored one if endorsed with "Yes" & 0 if it is supported with "No."**Psychological Well-Being**: Ryff's Psychological Well-Being Scale, developed by psychologist Carol D. Ryff in 2007, is used to measure well-being or quality of life. The reliability (test-retest) coefficient of RPWBS is 0.82. The subscales of Self-acceptance, Positive Relation with Others, Autonomy, Environmental Mastery, Purpose in Life, and Personal Growth were found to be 0.71, 0.77, 0.78, 0.77, 0.70, and 0.78 respectively, which were statistically significant ($p<0.001$).It is a 42-item scale with six alternative options of well-being and happiness. The aspects of this scale measure autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. The scores are on a scale of 6 to 1, where six represents "STRONGLY AGREE" and one means "STRONGLY DISAGREE." High scores indicate higher well-being.

Procedure

This study selected the subjects from Delhi, Haryana, and Punjab. All the samples were collected from different hospitals in those areas. After explaining the purpose of the study, their consent was taken, and the tests were given to them. After completing the test, the subjects' responses were scored, tabulated, and analysed through SPSS. After that, interpretations were made, and accordingly, conclusions were made.

Analysis of Data: The data were analysed through proper statistical measures (Mean, S.D., and' t-test) through SPSS.

Results

In the psychological well-being domain, the non-CHD subjects scored higher than the CHD subjects. It has been found from their mean scores (Non-CHD mean =174.48, CHD mean =151.24). From S.D values (Non-CHD, S.D. =19.37, CHD S.D. =17.96). It suggests that the subjects of the non-CHD group showed more scores variability than the CHD group. The 't' value (6.22) has been found significant at 0.01 level.The mean score of the CHD group is higher than the mean of the non-CHD group in the domain of anxiety (CHD mean =6.26, non-CHD mean =4.30). From S.D. values (S.D. of CHD group =3.14, S.D. of non-CHD

group =4.23), it may be said that the non-CHD group showed more variability of scores compared to the CHD group. The 't' value (2.63) has been found significant at 0.01 level.In the depression aspect, the CHD group of the present study showed more depression compared to the non-CHD group. It is evident from their mean scores (mean of CHD group =6.46, mean of non-CHD group =3.72). From S.D. values (S.D of CHD group =3.30, S.D. of non-CHD group =3.97), the non-CHD group showed more scores variability than the CHD group. The 't' value (3.75) has been found significant at 0.01 level.It is evident from their mean scores of stress domain (CHD subjects mean=6.14, non-CHD subjects mean =4.78). From S.D. values (S.D. of CHD group =3.01, S.D. of non-CHD group =3.92), it implies that the issues of the non-CHD group showed more scores variability than the subjects of the CHD group. The 't' value (1.94) has not been found significant.

	CHD		NON-CHD		t Value	Remarks
Psychological Well-Being	Mean	S.D.	Mean	S.D.	6.22	Significant at 0.01 level
	151.24	17.96	174.48	19.37		

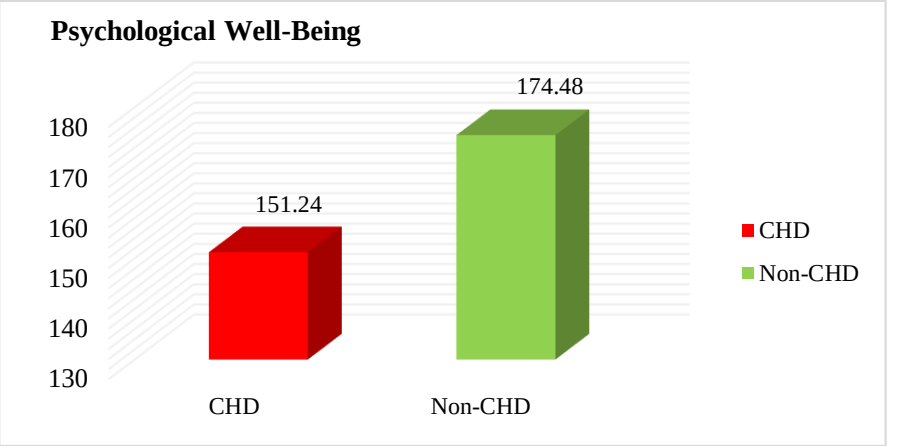

Figure 1: Psychological well-being comparative data representation of CHD and Non-CHD Patients

	CHD		NON-CHD			
	Mean	S.D.	Mean	S.D.	t-value	Remarks
Anxiety	6.26	3.14	4.3	4.23	2.63	Significant at 0.01 level
Depression	6.46	3.30	3.72	3.97	3.75	Significant at 0.01 level
Stress	6.14	3.01	4.78	3.92	1.94	Not significant at 0.01 level

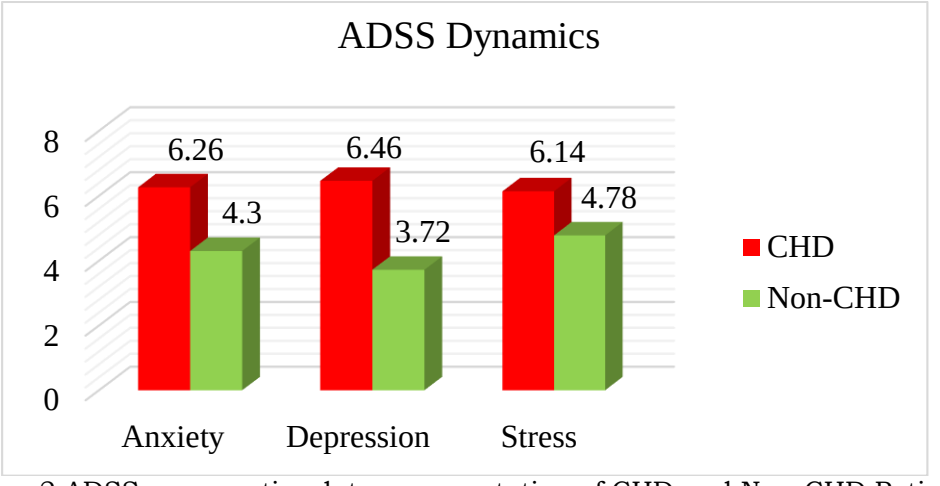

Figure 2 ADSS comparative data representation of CHD and Non-CHD Patients

Correlation study of CHD patients

		Depression	Stress	Anxiety	PWB
Depression	Pearson Correlation	1	0.692**	0.540**	-0.245
	Sig. (2-tailed)		0.000	0.000	0.086
	N	50	50	50	50
Stress	Pearson Correlation	0.692**	1	0.561**	0.108
	Sig. (2-tailed)	0.000		0.000	0.454
	N	50	50	50	50
Anxiety	Pearson Correlation	0.540**	0.561**	1	-0.070
	Sig. (2-tailed)	0.000	0.000		0.628
	N	50	50	50	50
PWB	Pearson Correlation	-0.245	0.108	-0.070	1
	Sig. (2-tailed)	0.086	0.454	0.628	
	N	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation study of non-CHD patients

		PWB non-CHD	Depression non-CHD	Stress non-CHD	Anxiety non-CHD
PWB non-CHD	Pearson Correlation	1	-0.557**	-0.423**	-0.359*
	Sig. (2-tailed)		0.000	0.002	0.010
	N	50	50	50	50
Depression non-CHD	Pearson Correlation	-0.557**	1	.870**	0.741**
	Sig. (2-tailed)	0.000		.000	0.000
	N	50	50	50	50
Stress non-CHD	Pearson Correlation	-0.423**	0.870**	1	0.736**
	Sig. (2-tailed)	0.002	0.000		0.000
	N	50	50	50	50
Anxiety non-CHD	Pearson Correlation	-0.359*	0.741**	0.736**	1

Sig. (2-tailed)	0.010	0.000	0.000	
N	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Discussion

The aim of this study was to get knowledge about the association of various psychological distress factors (depression, anxiety & stress) and Coronary Heart Diseases (CHD) in adult patients, and also to study the comparison between the various psychological factors like depression, anxiety &stressamong CHD & Non-CHD adult patients during the COVID-19 pandemic times. We also evaluated the impact of Stress, Anxiety & Depression on individual psychological well-being in the pandemic times.In the psychological well-being domain, the quality of life has been assessed. Quality of life indicates the nature and extent of the individual's psychological well-being. It refers that the mean difference between these two groups is statistically significant.The above result aligns with previous research findings (Boehm et al., 2011), indicating that people with no CHD problems show more psychological well-being. Anxiety refers to the apprehension of danger without reasonable cause in reality. The CHD group showed more concern than the non-CHD group in this domain, found from their mean scores. It refers that the difference between two mean scores is statistically significant.The above findings are closely associated with previous research studies (Sullivan et al., 1997, 2000), which refer that CHD patients show more anxiety than others.CHD patients have found to have high levels of depression as compared to non-CHD patients in line with previous studies. They are more susceptible to frequent mood changes owing to living and managing a disease in everyday life (Januzzi et al., 2000). It becomes difficult for them to deal with their intense emotions as emotional stimuli play significant role in triggering off acute coronary syndrome (ACS)making their situation a vicious circle (Kent & Shapiro, 2009).Depression is a clinical category where we can find retardation of activity, and the symptom ranges from lack of confidence low self-esteem to withdrawal and suicidal thoughts. The present study's data suggests that the difference between the two means is statistically significant. The above results are very similar to other research studies (Connerney et al., 2001; Sullivan et al., 2000), which refer to CHD patients showing more depression than others. Stress is an adverse mental or psychological effect that can reflect different symptoms in our psychophysiological system. Stress is also an essential factor for CHD patients. In this section, subjects of the CHD group showed more stress than that of the issues of the non-CHD group. It may be said that the difference between the two scores is due to the chance factor.

From the content analysis of the case studies of CHD patients, they expressed a lack of psychological well-being decision-making, which affected their lifestyles. They feel stressed individually, and their family has been generalized in terms of stress. They are also exhibiting problems of anxiety, depression, and stress. The qualitative analyses of those case studies are very much similar to the objective findings of the study. After analysing the case study of non-CHD patients, it has been found that they also experience stress. Still, they also exhibited different coping skills to manage those stress during Covid-19 situations. The problem of

expressing anxiety and depression showed less proneness than CHD patients. This finding is closely associated with previous research studies, implying that non-CHD subjects showed less prominence in an exhibition of stress and stress-related problems than CHD patients.

The overall discussion may be summarized that CHD patients showed less prominence in psychological well-being, coping with stress, anxiety, and depressive problems. It has also been supported from the qualitative analysis of the case studies. Among non-CHD subjects, the magnitude and extent of expression of psychological well-being, stress, anxiety, and depression are lesser than the CHD groups.

Conclusion

It may be concluded that there was the most severe impact of stress, anxiety, depression, and psychological problems among CHD patients compared to the non-CHD group.In all the dimensions of psychological well-being and anxiety, stress, and depression, CHD patients showed less prominence in all these fears than the non-CHD group. So, in the present study null hypothesis has been rejected, and the alternative view has been accepted. There is a significant relation between CHD and non-CHD subjects, where CHD subjects showed more deterioration in psychological well-being, anxiety, depression, and stress, respectively.Therefore, in this study, the effect of psychological well-being, stress, anxiety, and depression have been observed.The analysis of the variables mentioned above has been studied comparatively in the small section of the present study. So, the title is very apt and justified.

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