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TYPE D PERSONALITY;

TYPE A BEHAVIOR PATTERN, A STRATIFIED COMORBIDITY AND COPING IN PATIENTS WITH CARDIOVASCULAR DISEASE

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ABSTRACT… Introduction: The prevalence of cardiovascular disease (CVD) is escalating speedily in the developing world including Pakistan. CVD is considered to be one of the leading causes of deaths in near future. The CVD is believed to be associated with personality factors and the researches continue to refine the key elements predisposing cardiovascular disease. The objective of the study was to explore the construct of a Type A behavior pattern and Type D personality in patients with cardiovascular disease and healthy controls. **Settings:** Cardiology OPD of the hospitals in Rawalpindi and Islamabad. **Methods:** The psychometric tools used to measure these constructs are the Type A behavior pattern scale (TABP), Type D personality Scale (DS14) and Revised Ways of Coping Questionnaire (WCS-R). 100 patients with cardiovascular disease having coronary heart disease and myocardial infarction were compared with 100 healthy controls in terms of relevant aspects of their cardiovascular functioning. Traditional emphasis has been that Type A is a predictor of CVD. **Results:** The study results indicate that the Type D is a better predictor of cardiovascular heart disease as compared to Type A. Furthermore, the results indicate that frequency of Type A and Type D is more prevalent in CVD patients than in the healthy controls. **Conclusion:** Making an allowance for the high frequency of Type A and Type D personality in cardiovascular disease, controlling the behavior patterns can be useful for prevention of risk as well as for creating better management of CVD patients.

Key words: Type A behavior Pattern, Type D personality, Coping strategies, Cardiovascular heart disease (CVD).

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INTRODUCTION

The prevalence of cardiovascular disease (CVD) is escalating rapidly in the developing world and 8% of the deaths are attributable to the Cardiovascular disease which is predictable to increase in approaching years.[1,2] Among the developing countries the South-Asian countries are the major sufferers of CVD in comparison to any other country worldwide.[3] The surveys reveal a high incidence of CVD where over 20% of the inhabitants are affected by the disease, and the high rates are increasing day by day.[4] Myocardial infarction (MI) is most frequently (but not always) a manifestation of coronary heart disease (CHD).

In order to plan and design prevention and treatment, the prevalence of the cardiovascular disease and its association with personality and behavior patterns that can be the risk factors for its development must be acknowledged. Therefore, the present study was conducted to determine the occurrence of Type A and Type D personality in the patients in Pakistan.

The foundations of Type A behaviour pattern (TABP) were laid through the research by Friedman and Rosenman in 1974. The TABP entail behavioral characteristics such as competitiveness, short-tempered, work orientated, excessive concern about deadlines, apprehension, speed, etc. Through the physical perspective TABP displays itself in common tension, prompt and tense speech, along with attentiveness, urgency in behavior and irritability.[5,6]

Much of the researches have explored the association of personality and risk factors of CVD still there exists some uncertainty. Similarly there

has been controversial findings regarding the connectivity of Type A behavior and development of Cardiovascular diseases specifically the coronary heart disease.[7,8] The preliminary researches did show that people with TABP were at larger risk for developing CVD,[9] but many subsequent researches have been unsuccessful to sustain such findings and the prospective meta-analyses reveal an insignificant relationship between Type A personality behavior pattern and CVD occurrence. Although the overall relationship between the TABP and CVD events shows some inconsistency in literature but its traits like aggressiveness and anxiety are the important predictor of risk of CVD due to which this cannot be ignored for the prevention, management and prognosis of the cardiac patients.[10] The contemporary researches show a great interest in the personality risk factors connected with development of CVD so that the focus can be made on the prevention or the prognosis of the CVD patients.[11] And as the psychological aspects habitually cluster mutually in individual CVD patients, the clinical cardiac research can achieve from the detection and recognition of discrete types of personalities.[12] A significant aspect of the battle against CVD and CAD is rooted in the prime prevention, that is connected with personality risk factors which has proven effective in decreasing mortality rates due to CVD.[13]

In recent times, researchers have developed a renewed concern in the individual differences in terms of general distress and cardiovascular disease.[14] This spotlight on the general distress and individual differences made the researchers to explore the distress in the CVD patients and the findings helped in chalking out of a personality pattern called distressed personality or Type-D personality. Type D personalities go through chronic degree of general distress but it is not easily recognized due to their inexpressiveness. The type-D personality is characterized by a general distress blended with negative affectivity (NA) and social inhibition (SI).[15]

Negative affectivity, signifies the emotional distress in CVD patients whereas social inhibition is the expression of social distress. Individuals with high negative affectivity describe feelings of worry, tension and dysphoria, those with high social inhibition are apt to avert the negative reactions and social contacts with other people.[15,16] Inhibition of emotional expression and high social inhibition is associated with almost two-fold augmented risk of conclusive cardiac problems[17,18] therefore, in type-D personalities there is a greater risk of developing CVD and other mental health problems.[19]

Even though there is emergent evidence that suggests a prospective connection between type-D and Cardiovascular disease, it is ambiguous that which precise mechanisms and means tie the type-D behavior pattern to the CVD. Researchers believe that these may operate straightforwardly through psychophysiological factors like cardiovascular reactivity or in some way due to psychosocial mechanisms. A study showed that the negative affectivity and social inhibition were related to the dampened heart rate variability and high blood pressure reactivity in healthy individuals.[20]

Cardiac psychology researches reveal the association of Type D to the coping strategies although there has been a deficient literature regarding this. A high incidence of negative affectivity, social inhibition coping strategies are testified in CVD patients. A number of studies have publicized that the Coping strategies depicting avoidance and inhibition may have strong negative effect on the recovery from CVD and a positive relationship with the mortality rates.[21,22]

Coping is an active process that oscillates in due course in response to the varying and shifting demands as well as the appraisals of the circumstances. It is an alleviating agent that helps in sustaining psychological adjustment during demanding and tense phase of life, coping strategies are the ones that are helpful whenever a person faces high level of stress.[23]

Coping styles of individual are manifested in the way individuals routinely interpret and manage the

complex situations in their life from time to time. Generally, the personality traits, relationships and conditional vectors collectively produce a vigorous coping style; that makes the individuals to show signs of some characteristics. For example self-confidence, control over stressful situations, assertiveness and expect victory.[24]

Personality and coping are interlinked directly or indirectly in order to produce and maintain psychological adjustments.[25] Therefore, the personality traits or personality types can have an influence on the coping and its mechanisms. The Type D personalities are more inclined to use passive and maladaptive avoidance coping strategies which is associated with their higher levels of stress.[26]

METHOD

The study was conducted after getting approval by the Departmental Ethical Committee. Informed written consent was obtained from the participants. The sample was selected from the cardiology outpatient departments of the hospitals of Rawalpindi and Islamabad, Pakistan using purposive sampling. The sample consisted of 100 patients with cardiovascular disease having coronary heart disease, angina and myocardial infarction. Cases were compared with 100 apparently healthy controls in terms of relevant aspects of their cardiovascular functioning. The age range for the sample was 18 – 85 years.

The socio-demographic data sheet was developed by the researcher for the present study. It consisted of variables like age, gender, education, marital status, socio-economic status, History of smoking, family history, number of cigarettes smoked per day.

In order to measure Type-A behavior pattern scale used which was adapted from an instrument by Bortner (1969).[27] It is a 14-item instrument. The scores on each item ranges from 1 to 11 and the total scores may fall between 14 and 154. The scores help in classifying the subjects ranging from extreme Type-A personality to extreme Type-B personality.

Type D personality was measured utilizing the type D scale (DS-14) developed by Denollet[15], which comprises of 14 items divided into two sub-scales; where 7 items measure negative affectivity and 7 items measure social inhibition as major aspects of Type D personality. It is a 5-point Likert scale where response ranges from 1=false and 5=true. The total score ranges between 7–35 for negative affectivity and social inhibition subscales. The cutoff score is 21. As for separate personality traits assessment the cut off score for both subscales is 10 and any score equivalent or high than 10 can classify the individual as having the trait or Type D Personality. Both subscales revealed an internal consistency in the present study where Cronbach alpha was .81 and .78 respectively.

The ways of coping in the sample was measured by using the Revised Ways of Coping Scale developed by Sørlie and Sexton in 2001. It is a 26 item version of the Ways of Coping Questionnaire developed by Folkman and Lazarus in 1985. WCQ-R is a 5 point Likert scale with response category ranging from 1 = Not at all to 5 = Very much. It is a two factor scale with 5 subscales. The first factor is passive coping factor and it consists of 3 subscales: wishful thinking, avoidance and thinking it over. The second factor is active coping factor which has 2 subscales: seeking support and goal oriented.[28]

The purpose of the study was explained to hospital authorities and permission was gained to collect the data. The selection criteria included patients having cardiovascular diseases of angina, myocardial infarction and coronary heart disease. The data was collected from the out-patient department of the cardiac centers and the healthy controls were selected from the relatives and attendants having no heart related issues. The exclusion criteria consisted presence of any psychological disorder. The participants were also informed regarding the purpose of the study, answering their queries. They were assured regarding the confidentiality of their responses and information. The participation was entirely voluntarily and consent for the participation

was taken prior to the administration of the questionnaires. The questionnaires consisted of a demographic data sheet; Type A behavior Pattern Scale, Type D Personality Scale (DS14) and Revised Ways of Coping Scale. The researcher personally administered the questionnaires to the research participants.

RESULTS

The operations were performed to compute the NA and SI subscales of the 7 respective items. Employing the recommended cut-off score (NA = 10 and SI = 10) the subjects were classified as Type D personalities.

The findings in Table-I reveals that CVD patients as well as Healthy controls reported patterns of type A and type D personality. It was found that 36.2% patients could be classified as Type A where as 64.8% could be classified as Type D personality. On the other hand the reports of minor frequencies were found in the healthy controls, where 16.6% were found to meet the criteria for Type A, 9.4% for Type D and 74% could not be classified as either of these. The Type D personality patients were somewhat older in age, more educated as compared to Type A personality patients. Further Type D patients were more like to be married than Type A personalities.

The results of the multiple regression analysis showed in Table-II indicate that both Type A behavior and Type D personality are significant predictors of Cardiovascular disease. But the results suggest that type D is a better predictor of cardiovascular disease as compared to Type A behavior pattern. The value of adjusted R = 0.35 indicates that 35% of the variance for prevalence in cardiovascular disease is explained the type-A behavior pattern ($F = 72.43$, $P < 0.051$). At the same time the value of adjusted R = 0.66 indicates that 66% variance for prevalence in cardiovascular disease is explained by the type-D personality ($F = 91.46$, $P < 0.003$).

Table-III depicts that there was no difference indicated by the univariate analysis between the CVD patients and Healthy controls regarding the smoking, alcohol and family history of hypertension. The univariate analysis also showed a significant difference between the two groups on the over weight (45%; $\chi(1)=11.49;p=0.02$), physical activity (71%; $\chi(1)=7.81;p=0.02$) and hypertension (64.5%; $\chi(1)=5.11;p=0.00$) aspects of CVD patients and healthy controls.

	CVD Patients (n=100)		Healthy Controls (n=100)		
	Type A	Type D	Type A	Type D	Non-identified Type
Total Occurrence of Personality type	36.2%	64.8%	16.6%	9.4%	74%
Age (M±SD)	48.12±7.56	51.23±8.14	33.67±7.13	38.15±6.77	32.15±7.08
Gender (Male)	75.2%	81.7%	87.9%	91.8%	60.8%
Education (Masters)	57.8%	77.8%	67%	71.6%	88%
Married	61.8%	73.1%	84%	63.8%	76%

Table-I. Socio-demographics of Type A and Type B in both groups. (N=200)
Note: M- mean, SD – Standard Deviation

	B	SE	β	R^2	t-value	p
Type A Behavior Pattern	2.19	0.77	0.57	0.35	23.9	.051
Type D Personality	3.01	0.89	0.74	0.66	31.6	.003

Table-II. Regression analysis in Patients with Cardio Vascular Disease (CVD) (N=100)

	CVD Patients (n=100)	Healthy Controls (n=100)	p
Over weight	45%	26%	0.02
Smoking	38%	34%	0.24
Alcohol	19%	12%	0.50
Family History of Hypertension	59%	55%	0.33
Leisure Physical Activity/Exercise/Walk	51%	71%	0.01
Hypertension	64.5%	32%	0.00

Table-III. Clinical and psychosocial Characteristics of CVD patients and Healthy controls (N=200)

The difference between Cardiovascular Patients and Healthy controls for Type A personality and Type D was achieved performing the independent samples t-test to compare the groups. The Table-IV reveals the t-test results computed to differentiate between the two groups reveal Hobo syndrome. The result yielded a significant difference between Cardiovascular Patients and Healthy controls for Type A personality and Type D. The table results indicate a significant difference in Type A behavior pattern between patients with cardiovascular disease (M = 63.13, SD = 28.61) and Healthy controls (M =54.47, SD = 19.51), t = 3.60, p = 0.03, where cohen's d= 0.35 which indicates the effect size to be moderate. The findings reveals a significant differences in Type D personality between patients with cardiovascular disease (M = 83.34, SD = 38.43) and Healthy controls (M =64.36, SD = 25.55), t = 2.59, p = 0.01, where cohen's d= 0.58 which indicates a moderate effect size.

The correlation analyses in Table-III shows the statistically significant correlation between Type D personality pattern and passive coping factor at 0.01 level, this indicates that 78 individuals with Type D personality identified in the research data reveal a common usage of passive coping style to deal with the problems and distress in their life. Therefore, as the distress personality pattern increases and wishful thinking, avoidant coping and thinking it over also increases. The results showed that there is an insignificant relationship of active coping and Type D personality pattern.

Cardiovascular Patients (n=100)		Healthy controls (n=100)				Cohen's D
Scale	**M**	**SD**	**M**	**SD**	**t**	**p**
Type A behavior Personality	63.13	28.61	54.47	19.51	3.60	0.03 0.35
Type D Personality	83.34	38.43	64.36	25.55	2.59	0.01 0.58

Table-IV. Mean, Standard deviation and t-value for Type A and Type D personality between Cardiovascular Patients and Healthy controls (N=200).
df=198

	Type D Personality	
	r	**Sig.**
Active Coping	0.553	.32
Seeking Support	0.36	.24
Goal Oriented	0.49	.16
Passive Coping	0.38**	.00
Wishful thinking	0.28*	.04
Avoidant coping	0.32*	.02
Thinking it over	0.29**	.000

Table-V. Pearson's Product Moment Correlations for Type D personality and Coping (N=78)
**Correlation is significant at the 0.01 level.
*Correlation is significant at the 0.05 level

DISCUSSION

The purpose of the present study was to examine the construct of a Type A behavior pattern and Type D personality in patients with cardiovascular disease and healthy controls. The intention was to first find the prevalence of the two types in the CVD and healthy controls. No such study has been performed exploring the both types of personality in one study. Our findings showed more presence of type D personalities as compared to type A personalities which is indicative of Type as being a better predictor of CVDs.

The findings of the study reveal that both groups of CVD patients as well as Healthy controls reported patterns of type A and type D personality which are in concordance with the results of other studies.[10,15] patterns of Type A behaviors were reported in 36.2% patients and 64.8% could be classified as Type D personality among the CVD patients. Whereas lesser presence of the personality types were found in the healthy controls, 16.6% were classified as having Type A behavior pattern and 9.4% were found having Type D traits. 74% among the healthy controls could not be classified as either of these types. The Type D personality patients were somewhat older in age, more educated as compared to Type A personality patients. Further Type D patients were more like to be married than Type A personalities. There was not much difference from the perspective of gender which is in line with recent findings of other studies.[29] The t-test also revealed that the patients with cardiovascular diseases have more prevalence of Type A and Type Personality as compared to healthy controls.

Our results have revealed that average scores on both subscales of type D scale (DS14) negative affectivity and social isolation are above cut-off values in the sample; specifically the patients with Cardiovascular disease. Such results of the study are consistent with those reported in other studies.[29,30]

Another purpose of this study was to examine the relationships among Type D and coping strategies, in cardiovascular disease (CVD) patients and healthy controls. The relatively stable attributes, like personality, may not be alterable, but still they can be trained regarding the use of the coping and thus it can be a way of preventing or managing the cardiovascular disease patterns in the patients and general masses, further it may be used as a mode of intervention with CVD patients in order to control the further aggravation of their disease and health.[31,32] Therefore, it can be assumed that if the use of adaptive coping strategies is improved and maladaptive coping strategies like avoidant coping are reduced in Type D individuals psychological distress can be condensed, and the cardiovascular disease incidence can be controlled.

The findings of the present research have also shown the statistically significant correlation between Type D personality pattern and passive coping among 78 identified individuals with Type D personality. The distress personality pattern increases the wishful thinking, avoidant coping and thinking it over enabling a person to use the maladaptive coping strategies. The results can be beneficial for the clinical settings by using the early detection of Type D personality and using of preventative measures to have larger effectiveness against CVD onset than clinical intervention and management once the CVD is in evolutionary process. The study findings are consistent with the literature where the group differences between the Type D and non-Type D reveal that the Type D are less resilient than non-type D and also that Type D personalities use maladaptive coping strategies.[33,34]

CONCLUSION

Unlike the Traditional emphasis that Type A is a predictor of CVD we found that Type D is a better predictor of cardiovascular heart disease as compared to Type A. Making an allowance for the high frequency of Type A and Type D personality in cardiovascular disease, controlling the behavior patterns can be useful for prevention of risk as well as for creating better management of CVD patients.

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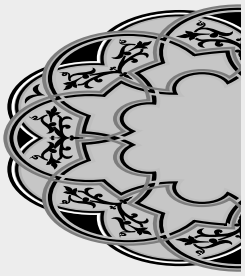

"The less you know, the more you believe."

Bono

AUTHORSHIP AND CONTRIBUTION DECLARATION

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