Distressed Personality Among Yemeni Patients With Coronary Artery Disease: An exploratory Study

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Abstract

Coronary artery disease (CAD) is the main health problem in the world with high mortality and disability, distressed personality (type D personality) was developed as an emerging psychological risk factor in CAD. This study aimed to explore the prevalence of distressed personality among patients with CAD and to investigate the association between the demographic and clinical characteristic of Type D and non-Type D personality in a sample of 74 CAD Yemeni patients who presented to Algamhouria Teaching Hospital and a private clinic in Aden between April 2017 and May 2018 diagnosed by consultant cardiologist. The Type D Scale-14 (DS14) and a demographic questionnaire were used to assess distressed personality. 66.2% patients with CAD classified as distressed personality and its prevalence was significantly higher in patients with CAD coming from Abian governorate ($p < 0.05$). Furthermore, hypertension and DM were more in CAD patients with distressed personality. CAD patients who smoke cigarette were statistically significant and were less likely to have distressed personality ($p < 0.05$). This is the first study in Aden shows that distressed personality had a high prevalence in patients with CAD; reported high prevalence of hypertension and diabetes mellitus. So those patients should be carefully diagnosed and behavioral cardiology should be further developed in order to prevent consequences such as adverse cardiac events.

Key words: Disease, coronary artery, distressed personality, Type D

Introduction:

Coronary artery disease (CAD) is the main health problem in the world with high mortality and disability [23]. According to the latest world health organization (WHO) data published in 2017 coronary artery disease deaths in Yemen reached 31.980 or 21.99% of total deaths and its prevalence about 49% in Yemen [27].

Coronary artery disease (CAD) is a multi-factorial condition, resulting from the convergence of genetics, environment, diet, and lifestyle. Recognized risk factors for the development of heart disease include family history, high blood pressure and smoking, elevated low density lipoprotein (LDL) cholesterol, diabetes, physical inactivity, and obesity, [3], also known as standard risk factors. However, it is estimated that 50% of new coronary heart disease cases cannot be identified on the basis of standard risk factors [4]. Besides standard risk factors, extensive evidence from literature demonstrates that psychological and psychosocial variables were associated with the pathogenesis and manifestations of CAD [5,14,22]. New developments in behavioral medicine shift the health psychologists' attention to the key role of non-biological factors in coronary heart disease (CHD) [6]. They found that CAD is a type of disease with psychosomatic causes and the role of psychological factors especially personality is clear directly or indirectly [15].

Substantial researches has been directed toward identifying factors that contribute to the etiology and progression of cardiovascular diseases, these efforts have focused primarily on standard risk factors including diabetes, hypertension, smoking, hypercholesterolemia, and lifestyle factors [1,2]. However, these variables provide an incomplete account of CAD risk factors, while personality factors have been ignored in studies of cardiac risk factors in Middle East.

The construct of personality is also known to be associated with morbidity and mortality of coronary heart disease as an independent predictor [13].

One of the most well-known personalities that recently received a lot of attention is Type D personality construct. This discrete, homogeneous, distressed personality type was developed in European patients with ischemic heart disease. Type D personality is characterized by both normal and stable personality traits, negative affectivity (NA, the tendency to experience negative emotions) and social inhibition (SI, the tendency to inhibit expression of emotions). Type D personality has been associated with a variety of emotional and social difficulties and associated with an increased risk of impaired quality of life, morbidity and mortality in conjunction with various cardiovascular diseases [7].

It has also been suggested as a prognostic predictor and a determinant of clinical outcome and health status, even after therapeutic interventions [17]. There is also evidence that type D personality serves as a vulnerability factor for development of cardiovascular disorders among healthy population [21].

To assess this personality construct using a reliable and standardized Method, Type D Personality Scale-14 (DS14) was developed. The validity and reliability of the DS14 has been established in European populations [8,11,18], and in China [28]. Therefore, the primary aim of this study was to explore the prevalence of distressed personality (type D personality) among patients with coronary artery disease, in addition, as a secondary goal investigate the association between the demographic and clinical characteristic of Type D personality and non-Type D personality in a sample of CAD patients in Aden.

This work is primarily interested in examining whether type D personality can contribute to coronary artery disease risk factors in Aden.

Patients and Method:

This is an exploratory cross-sectional study study used convenience sampling enrolled 74 patients with coronary artery disease who presented to Algamhouria Teaching Hospital and a private clinic in Aden between April 2017 and May 2018 diagnosed by consultant cardiologist. Exclusion criteria included patients older than 75 years and co morbid chronic diseases like cancer, HIV, renal problems, psychiatric disorders and being on therapy for any chronic illness. All patients gave written informed consent to take part in the study.

The Type D Scale-14 and a demographic questionnaire were used to assess Type D personality and coronary artery disease. The study was approved by the local ethics committee, faculty of medicine and health sciences, university of Aden.

The personality assessment was carried out by the D-Scale 14 (DS14) as the standard measure of distressed personality (Type D personality). The 14 items of this scale are answered on a five-point Likert scale (0–4), with a score range from 0 to 28 for each subscale. This scale comprises two 7-item subscales: negative affectivity (NA) (tendency to experience negative emotions) and social inhibition (SI) (tendency to inhibit self expression), the presence of Type D personality is defined as having a cut-off score of ≥ 10 on both subscales [8].

Statistical analysis:

Data were analyzed using the Statistical Package for the Social Sciences version 20 for Windows statistical software program (SPSS, Chicago,USA).Descriptive statistics were used, continuous data are expressed as (mean and standard deviation), categorical data are expressed as numbers (%). Univariate analysis was used to find the association between demographic and clinical variables of Type D personality and non-Type D personality by chi square test. Predictors of satisfaction were determined using logistic regression analysis to assess the impact of the risk factors for CAD in patients with distressed personality (type D), P-value < 0.05 was considered statistically significant.

Results:

For the 74 patients with coronary artery disease included in the study, the mean age was 57.4 (±9.25) years. There were 11(14.9 %) female; 63(85.1%) male. The clinical characteristics of these patients, 51 (68.9%) were hypertensive, 34 (45.9%) were diabetic, 9 (12.2%) had heart failure and 40 (54.1%) were smokers.

The base line socio-demographic characteristics of CAD patients, 70% were from Aden governorate, 33.8% had university education and 29.7% had secondary education.60.8% were employed and 95.9% were married. Baseline socio-demographic and clinical characteristics for Coronary Artery Disease patients are summarized in Table I.

Table 1: Baseline Socio-demographic and clinical characteristics for CAD patients (n=74)

Variables	No.	%
Gender		
Male	63	85.1
Female	11	14.9
Mean age (years):	57.4 ± 9.25	
Education level		
Illiterate	6	8.1
Read and write	6	8.1
Basic	15	20.3
Secondary	22	29.7
University	25	33.8
Residence (governorate)		
Aden	52	70.3
Lahaj	7	9.5
Abian	15	20.3
Employment:		
Employed	45	60.8
Unemployed	29	33.8
Marital status		
Married	71	95.9
Unmarried	3	4.1
Smoking		
No	34	45.9
Yes	40	54.1
Hypertension		
No	23	31.1
Yes	51	68.9
Heart failure		
No	65	87.8
Yes	9	12.2
Diabetes		
No	40	54.1
Yes	34	45.9

According to the results that obtained from 74 subjects with CAD and by applying the recommended cut-off value (NA ≥10 and SI≥10), it was found that the prevalence of CAD patients having distressed personality (Type D personality) 49 (66.2%) with negative affectivity 43(58%) and social inhibition 52 (70%) were higher than non-Type D personality 25(33.8%) with negative affectivity 31(41.9%) and social inhibition 22(29.7%). The Prevalence of Type D Personality and the subscales of Negative Affectivity and Social Inhibition among the patients with CAD are illustrated in Table 2.

Table 2: Prevalence of Type D Personality and the subscales of Negative Affectivity and Social Inhibition among patients with CAD

Type D scale 14	Positive	%	Negative	%
Type D Personality	49	66.2	25	33.8
Negative Affectivity	43	58.1	31	41.9
Social Inhibition	52	70.3	22	29.7

Univariate analysis of socio-demographic and clinical characteristics of distressed personality (Type D) vs. non-Type D personality, patients have showed that 93.3% of patients with Type D personality were from Abian governorate, 59.6% were from Aden and 57.1% were from Lahaj. This study found that the patients with Type D personality were slightly younger compared to non-Type D personality patients 56.2 (±9.2) vs. 59.7(±9) years. Additionally, they were more likely to be employed (66.7% vs. 33.3%) and more likely to be married (66.2% vs. 33.8%). Patients with type D personality were more educated (59.1% for secondary education & 56% for university education vs. 40.9% for secondary education & 44% university education) for none type D personality. However, there was no significant difference between distressed personality (Type D) and non-Type D personality in terms of age, marital, employment and level of education, while there was statistical significant differences between type D and non-

type D patients on the residency variable (p= 0.045) where type D personality was highly observed among patients coming from Abian governorate. This study showed no difference between patients with or without Type D personality having hypertension, diabetes mellitus and heart failure. In contrast, the prevalence of hypertension and diabetes mellitus were higher in Type D personality patients (72.5%, 64.7%) than non-Type D personality (27.5%, 35.3%).

On the other hand, there were statistically significant differences in the prevalence of smoking habits in patients with Type D and non-type D personality (P = 0.001), where 85.3% of patients with type D personality don't smoke compared to only 14.7% of non-type D personality.

Univariate analysis of socio-demographic and clinical characteristics of type D vs non-type D personality patients are presented in Table 3.

Table 3: Distribution of socio-demographic and clinical characteristics related to Type-D personality and non-Type D in CAD patients

Socio-demographic &clinical variables	None Type D personality		Type D personality		*P*- value
	No	**%**	**No**	**%**	
Gender					
Male	22	34.9	41	65.1	0.621
Female	3	27.3	8	72.7	
Mean age (years)	59.72 ± 9.09		56.22± 9.20		0.216
Education level					
Illiterate	2	33.3	4	66.7	0.159
Read and write	2	33.3	4	66.7	
Basic	1	6.7	14	93.3	
Secondary	9	40.9	13	59.1	
University	11	44.0	14	56.0	
Residence (governorate)					
Aden	21	40.4	31	59.6	0.045*
Lahaj	3	42.9	4	57.1	
Abian	1	6.7	14	93.3	
Employment					
Employed	15	33.3	30	66.7	0.919
Unemployed	10	34.5	19	65.5	
Marital status					
Currently married	24	33.8	47	66.2	0.738†
Currently unmarried	1	33.3	2	66.7	
Smoking					
No	5	14. 7	29	85.3	0.001*
Yes	20	50.0	20	50.0	

Hypertension					
No	11	47.8	12	52.2	0.086
Yes	14	27.5	37	72.5	
Heart failure					
No	20	30.8	45	69.2	0.141
Yes	5	55.6	4	44.4	
Diabetes					
No	13	32.5	27	67.5	0.800
Yes	12	35.3	22	64.7	

*Chi square test , P< 0.05 consider significant

Logistic regression analysis models Table 4. Included variables retained significant. CAD patients who smoke cigarette were statistically significant (P=0.004) and were less likely to have distressed personality. Regarding residency, patients resided in Abian governorate were more likely to have distressed personality (Type D) than patients resided in Aden governorate, and this was statistically significant (p=0.049).

Table 4: Logistic regression analysis of distressed personality in CAD patients

Variables	Type D personality					
	β	SE (±)	Wald	Odds ratio	95% CI	P value
Smoking						
No*	1.00					
Yes	1.711	0.597	8.213	0.181	0.056 – 0.582	0.004
Residency						
Aden*	1.00					
Lahaj	-.129	0.882	0.021	0.879	0.156 – 4.951	0.884
Abian	2.169	1.100	3.884	8.746	1.012 – 75.573	0.049

Discussion:

This is the first study of its kind in Aden concerning the prevalence of distressed personality (Type D personality) in patients with CAD and the connection between Type D personality and some components of metabolic syndrome in patients with CAD. The findings of this study have shown that 66.2% of the patients with CAD classified as distressed personality, 72% of patients with Type D personality have hypertension and 64.7% have DM which is in concordance with the results of a study by Denollet [8], which had reported about 53% of patients with hypertension with Type D personality, studies done by Vukovic et al [24] and Saeed et al [19] found that 34.2% and 71% of examined patients with CAD classified as distressed personality (Type D personality).

On the other hand, two similar studies among Chinese patients were reported no association between distressed personality and CAD [22]. There is a possibility that in certain cultures, Type D operates differently and by itself is not an indicator of CAD, however, it may affect CAD indirectly through increasing symptoms of anxiety and depression that may eventually lead to CAD. Williams et al [25] consider cultural differences in regard to prevalence of this construct, indicating that the prevalence of Type D personality among patients with CAD is higher in Great Britain and Ireland than in Italy Gremigni et al [12]. Another possible explanation is that people differ in different parts of the world may perceive distress differently making DS14 culturally inappropriate for use in some parts of the world. Another reason for the obtained different results was number of sample size conducted elsewhere to estimate prevalence of type D personality among CAD patients could be an important area of study.

Our findings have shown the prevalence of distressed personality on both subscales negative affectivity and social inhibition (NA/SI) was higher than non-Type D personality in patients with CAD, which are similar with those reported in other studies Williams [26].

The percentage (58%) on the NA subscale (i.e. tendency to experience negative emotions) in this study was consistent with previous findings Frasure-Smith et al [10]. Also, this study tended to inhibit self-expression in social interactions (70%), it should be stressed that inhibition of negative emotions might be related to higher CAD risk. The combined effect of negative affectivity with social inhibition may further exacerbate the cardiac morbidity and mortality risk Schiffer et al [20].

The findings of this study have shown that there was statistical difference between the patients with or without Type D personality regarding smoking (p=0.001) but there was no statistical difference between the patients with or without Type D personality having history of hypertension and diabetes mellitus. In contrast, the prevalence of Type D personality was high in individuals with hypertension and DM but statistically not significant Mommersteg et al (16) found that individuals with Type D personality have increased risk for metabolic syndrome that may be attributed to the hypertension, hypertriglyceridemia and diabetes.

Some studies on cardiac risk factors confirmed positive correlation between Type D personality and metabolic syndrome components Einvik et al [9]. Therefore, further studies are needed to investigate whether it is the traditional cardiovascular risk factors that trigger the correlation between the Type D personality and the etiopathogenesis and prognosis of CAD.

Conclusion:

This study is the first in Aden shows that Type D personality had a high prevalence in patients with CAD especially from Abian governorate; furthermore, CAD patients with distressed personality reported high prevalence of hypertension, DM. Type D personality in CAD patients should be carefully diagnosed and behavioral cardiology should be further developed in order to prevent consequences such as adverse cardiac events.

References:

1- Baynouna LM, Revel AD, Nagelkerke NJ, Jaber TM, Omar AO, Ahmed NM, et al. (2008). High prevalence of the cardiovascular risk factors in Al-Ain, United Arab Emirates: An emerging health care priority. Saudi Med J. 29(8):1173-8.

2- Baynouna LM, Revel AD, Nagelkerke NJD, Jaber TM, Omar AO, Ahmed N, et al. (2009). Associations of cardiovascular risk factors in Al Ain- United Arab1Emirates. Cardiovasc Diabetol. 8: 21.

3- Bhatia SK. (2010). Biomaterials for Clinical Applications.New York: Springer. Pp: 23 – 49

4- Denollet J. (1997). Personality, emotional distress and coronary heart disease. Eur J Pers. 11:343-57.

5- Denollet J, Vaes J, Brutsaert DL. (2000). Inadequate response to treatment in coronary heart disease: Adverse effects of type D personality and younger age on 5-year prognosis and quality of life. Circulation. 102:630-5.

6- Denollet J, Schiffer AA, Spek V. (2010). A general propensity to psychological distress affects cardiovascular outcomes: evidence from research on the type D(distressed) personality profile. Circ Cardiovasc Qual Outcomes. 3(5):546–57.

7- Denollet J, Sys SU, Brutsaert DL. (1995). Personality and mortality after myocardial infarction. Psychosom Med. 57: 582-91.

8- Denollet J. (2005). DS14: Standard assessment of negative affectivity, social inhibition, and Type D personality. Psychosom Med. 67: 89-97.

9- Einvik G, Dammen T, Hrubos-Strøm H, Namtvedt SK, et al. (2011). Prevalence of cardiovascular risk factors and concentration of Creactive protein in Type D personality persons without cardiovascular disease. Eur J Cardiovasc Prev Rehabil. 18(3):504-9.

10- Frasure-Smith N, Lespérance F. (2003). Depression and other psychological risks following myocardial infarction. Arch Gen Psychiatry. 60:627–36.

11- Grande G, Jordan J, Kummel M, Struwe C, Schubmann R, et al. (2004). Evaluation of the German type D scale (DS14) and prevalence of the type D personality pattern in cardiological and psychosomatic patients and healthy subjects. Psychother Psychosom Med Psychol. 54: 413-22.

12- Gremigni P, Sommaruga M. (2005). Type D personality, a relevant construct in cardiology. Preliminary validation study of the Italian questionnaire. Psicot Cogn Comport. 11:7-18.

13- Heilbrun AB, Friedberg EB. (1988). Type A personality, self- control, and vulnerability to stress. J Pers Assess. 52: 420-33.

14- Krantz DS, McCeney MK. (2002). Effects of psychological and social factors on organic disease: A critical assessment of research on coronary heart disease. Annu Rev Psychol. 53: 341-69.

15- Moazen S, Azad-Fallah P, Safi M. (2009). Comparison of brain / behavioral systems activity and dimensions of perfectionism in coronary heart disease and normal subjects. J Behav Sci. 3(2):113–9

16- Mommersteeg PM, Kupper N, Denollet J. (2010). Type D personality is associated with increased metabolic syndrome prevalence and an unhealthy lifestyle in a crosssectional Dutch community sample. BMC Public Health. 10:714.

17- Pedersen SS, Denollet J, Ong AT, Sonnenschein K, et al. (2007). Adverse clinical events in patients treated with sirolimus-eluting stents: the impact of Type D personality. Eur J Cardiovasc Prev Rehabil. 14: 135-40.

18- Pedersen SS, Denollet J. (2004). Validity of the Type D personality construct in Danish post-MI patients and healthy controls. J Psychosom Res. 57:265-72.

19- Saeed T, Niazi GSK, Almas S. (2011). Type-D personality: a predictor of quality of life and coronary heart disease. EMHJ. 17 (1) :46-50

20- Schiffer AA, Pedersen SS, Broers H, Widdershoven JW, Denollet J. (2008). Type-D personality but not depression predicts severity of anxiety in heart failure patients at 1-year follow-up. J Affect Disord. 106:73-81.

21- Starrenburg AH, Kraaier K, Pedersen SS, van Hout M, et al. (2013). Association of psychiatric history and type D personality with symptoms of anxiety, depression, and health status prior to ICD implantation. Int J Behav Med. 20(3):425-33.

22- Steptoe A. (1999). Psychosocial factors in the aetiology of coronary heart disease. Heart. 82: 258-9.

23- Taylor SE, Sirois FM. (1995). Health psychology. (3rd ed.) McGraw-Hill. New York.

24- Vukovic O, Tosevski DL, Jasovic-Gasic M, Damjanovic A, et al. (2014). Type D personality in patients with coronary artery disease. Psychiatria Danubina. 26(1): 46-51

25- Williams L, O'Connor RC, Howard S, Hughes BM, Johnston DW, Hay JL, et al. (2008). Type D personality mechanisms of effect: The role of health-related behaviour and social support. J Psychosom Res. 64: 63-8.

26- Williams L, O'Connor RC, Grubb NR, O'Carroll RE. (2011). Type D personality and illness perceptions in myocardial infarction patients. J Psychosom Re. 70:1414.

27- World Health Organization. (2017). ICD-10 CODES: 120-125/World Health Organization (WHO). Available at: WWW.worldlifeexpectancy.com/Yemen-coronary-heart-disease,

28- Yu XN, Zhang J, Liu X. (2008). Application of the Type D Scale (DS14) in Chinese coronary heart disease patients and healthy controls. J Psychosom Res. 65: 595-601.

الشخصية من النمط D بين المرضى اليمنيين المصابين
بمرض الشريان التاجي: دراسة استكشافية

فائدة أحمد عبيد   آمال صديق باصديق

الملخص

مرض الشريان التاجي هي المشكلة الصحية الرئيسية في العالم المرتبطة بارتفاع الوفيات والعجز. الشخصية من النمط D ظهرت كعامل نفسي دو خطورة لمرضى الشريان التاجي. هدفت الدراسة الى التعرف على معدل انتشار نمط الشخصية (D) لدى مرضى الشريان التاجي ودراسة العلاقة بين المتغيرات الديموجرافية والإكلينيكية لمرض الشريان التاجي ونمط الشخصية (D). الدراسة استخدمت العينة القصدية والتي اشتملت على 74 مريض بمرض الشريان التاجي كانوا متواجدين في مستشفى الجمهورية التعليمي والعيادة الخاصة في مدينة عدن في الفترة مابين ابريل 2017– مايو 2018 تم تشخيصهم بواسطة استشاري أمراض القلب وقد استخدم المقياس ذي ال 14 بنداً للشخصية من النمط D لتقييم الشخصية من النمط D واستبيان لتقييم المتغيرات الديموجرافية والإكلينيكية للمرضى. أظهرت نتائج الدراسة ان 66.2% من مرضى الشريان التاجي أحرزوا درجات ايجابية على مقياس الشخصية من النمط D. واظهر أن معدل انتشار الشخصية من النمطD كان مرتفع ودال إحصائيا عند المرضى المقيمين في محافظة أبين ($p<0.05$) إضافة إلى ذلك مرض ارتفاع ضغط الدم والسكري مرتفع عند مرضى الشريان التاجي دوي نمط الشخصية D. وقد أوضح التحليل أيضا أن التدخين ومحل الإقامة يمكن اعتبارهما منبئين للشخصية من النمط ($p<0.05$)D. هذه الدراسة هي الأولى من نوعها تقيس معدل الانتشار وتصف المتغيرات الديموجرافية والإكلينيكية لنمط الشخصية D لدى مرضى الشريان التاجي في عدن. لهذا لابد من التطوير والاهتمام بالجوانب السلوكية في الأمراض القلبية للوقاية من العواقب والأحداث القلبية السلبية.

الكلمات المفتاحية: مرض، الشريان التاجي، الشخصية، النمط D .