

Personality Type A or Personality Type D, Which is a Strong Predictor of Coronary Heart Disease?

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Abstract Considering the increasing incidence and prevalence of coronary heart disease and the increasing emphasis of health researchers on the association and relationship of psychosocial factors with the occurrence and persistence of cardiovascular disease, the need to identify the desired factors and determine each of the personality and psychological factors. The effect is felt more than ever in patients who are also the target of the present study. The main purpose of this study was to determine the predictors of coronary heart disease based on personality types. Among cardiovascular patients, men and women aged 25-60 years in Shahid Madani and 29 Bahman hospitals in Tabriz, who were admitted to surgical wards for coronary angiography in 2015, 50 people were selected who met the inclusion criteria. Also, 50 patients were selected from the patients' companions and answered the questionnaires of Denollet type D personality and Ratus personality pattern questionnaire. Findings showed that the variables of negative emotions, social inhibition of the personality type D subscale were predictors of coronary heart disease. But the role of personality type A in predicting coronary heart disease is not significant. Social inhibition was also the strongest predictor of coronary heart disease. The present study showed that personality factors are predictors of coronary heart disease.

Keywords: Coronary Heart Disease, Personality Type A, Personality Type D

1. Introduction

Cardiovascular disease (CVD) is the leading cause of death in developed and developing countries, and coronary artery disease is the most deadly cardiovascular disease, accounting for more than 50% of all cardiac deaths. [1], [2]. The prevalence of cardiovascular disease is increasing rapidly among developing countries and is expected to be a major cause of death in the coming decades. In the most serious statistics provided in the United States by Mozaffarian et al., the results show that about 720,000 Americans experience a heart attack each year. Studies in Iran also show that the rate of coronary artery disease has increased between 20 and 45% in recent years. [3,4,5,39].

On the other hand, psychologists believe that psychological components such as stress, anxiety, depression, and personality types A and D play a role in the development of heart disease. Hence, the first area of cardiovascular disease (CVD) that heart psychology focuses on is Coronary Artery Disease (CAD). [6]. It was explained that coronary artery disease included three major clinical symptoms: Angina Pectoris (chest pain), myocardial infarction, and Sudden Cardiac Death (SCD). Stenosis of 70% or more of one or more of the three major coronary arteries or their branches is usually necessary for the onset of symptoms of these three symptoms. Coronary Artery Disease (CHD) includes a wide range of diseases such as Silent Ischemia, Chronic Stable Angina, Unstable Angina, Myocardial Infarction, Ischemic Cardiomyopathy and Sudden Cardiac Death, but CHD generally occurs in two forms of angina pectoris (Angina Pectoris). [6].

One of the topics that has occupied the minds of researchers in the field of health psychology today is the relationship between personality traits and coronary heart disease. Rosenman and Friedman began extensive efforts to influence personality in heart disease, which eventually led to the discovery of personality type A. Both of them believed that personality type A is an important cause of heart disease. [7]. According to many researchers, people with type A are more likely to cause stress. They are competitive, regular, time sensitive, impatient and aggressive and have less inner satisfaction. [8,9]. Ever since the Type A behavior pattern was described, it has always been associated with what researchers have called the expressive style. Expressive style is a quantifiable pattern in the expression of nonverbal cues by the individual. A person of type A is basically defined as: a person who walks fast, his face and eyes are watching everything. He looks nervous, clenching his jaws, clenching his teeth, laughing uneasily, squinting his eyes, sitting on the edge of a chair, making hand movements with his fist or index finger, losing his limbs or He moves impatiently, has a loud and harsh voice, speaks fast and with sharp words, shakes hands loudly when greeting, and in general his non-verbal expression is accompanied by intensity. [10].

Recent research on the structure of type A attempts to separate aspects of the type A pattern of behavior that have very dangerous effects on heart disease from other aspects. People with type A who are active, sensitive, and cheerful are less likely to have heart disease, but those with more excitement, chronic hostility, anger, and aggression are more at risk [11]. On the other hand, among type A people, those who are most at risk for heart disease, in addition to the above characteristics, have a strong suspicion of others. [11].

But subsequent contradictory findings questioned the significant relationship between type A behavior and coronary artery disease. [12]. While some researchers have attributed these heterogeneous findings to the way in which type A individuals are measured in these studies, others believe that not all of the elements that make up type A behavior are pathogenic. Researchers believe that type A behaviors contain pathological (toxic) and non-pathological (non-toxic) aspects. [13]. They argue that some characteristics of type A behavior, such as temporal urgency and competitiveness, are not the most important components of type A behavioral harm. The main variable probably includes other characteristics. Compared to all type A behaviors, hostility in interpersonal relationships is a better predictor of heart disease [14]. Of course, other studies are available that do not support such a relationship [15].

Another psychological variable that has been suggested in relation to cardiovascular disease is personality type D. Type D personality, including introversion, has been proposed based on theories of personality traits. Whether type D and theories such as the 5-factor personality model can replace the concept of type A is the subject of current research [8,16]. Research suggests that personality type D has a strong and stable association with a range of health problems, including heart problems, myocardial infarction, and poor quality of life [17,18]. Personality type D, independent of other factors, is an important predictor for coronary artery disease patients and has lasting and important effects on their health. Explain that personality type D is one of the most prominent behavioral patterns among normal and healthy people and indicates the interaction between negative affectivity and social inhibition, which leads to the experience of negative affectivity on the one hand and the inhibition of these emotions on the other hand. When an individual has both of these personality traits, negative affectivity and social inhibition, simultaneously and with high intensity, he or she is classified as a type D personality or a disturbed personality [19,20].

People who score high on negative emotions experience a lot of boredom, anxiety, and irritability. They have a negative view of themselves and imagine a world of signs of impending trouble [21]. Social inhibition is characterized by a persistent tendency to inhibit emotional and behavioral experiences in social interactions. People with high social inhibition are more likely to prevent the reactions of others by over-controlling their self-expression (not expressing their opinions and characteristics). People with high social inhibition feel restrained, stressed, and insecure when in the presence of others, and have characteristics such as lack of communication, lack of energy, lack of courage, and unwillingness to communicate between people [29]. People with high scores on social inhibitions see the world around them as threatening and, in fact, use avoidance strategies. This means that in social interactions, situations are avoided where there is a possibility of disapproval and loss of reward for others. Social isolation may exacerbate the effects of negative emotions [22].

Although negative emotions are measured in personality type D, accompaniment and association are the tendency to experience negative emotions and the refusal to express those emotions that have more detrimental effects on health than the experience of negative emotions alone. In other words, it is the combination of these two properties that causes destructive effects on health. In other words, personality type D theory in research on the role of stress in heart disease means that the ways that people use in the face of negative emotions can be as important as the experience of negative emotions [22,23]. However, the way individuals with type D personality deal with stressful situations is different from other coping styles such as repression [24,23]. Suppression, for example, refers to the subconscious removal of negative emotions from the realm of consciously experiencing less stress and unhappiness, while type D individuals experience a great deal of interpersonal stress and consciously try to avoid expressing it [21,40].

Turning to the above, and considering that personality and behavioral variables affect the health and well-being of coronary artery patients and the role of personality types A and D is known as heart risk factors, but several previous studies have shown contradictory results in this field. In this area, psychologists are trying to highlight the contribution of psychological

components, including personality patterns; therefore, the present study aimed to answer the question of which personality type A or personality type D is a strong predictor of coronary heart disease.

2. Method

The present study had two statistical populations: 1- All male and female cardiovascular patients aged 25-60 years in *Shahid Madani* and *29 Bahman Hospitals* in Tabriz who were hospitalized in surgical wards for coronary angiography during 2015; 2- Companions of the mentioned patients who did not have a diagnosis of cardiovascular disease. From the statistical population of patients, 50 people were selected as a sample with inclusion criteria. Inclusion criteria included:

1. Willingness to participate in the study
2. Receiving a diagnosis of coronary heart disease by a specialist physician and
3. Having a minimum cycle education.

Exclusion criteria also include:

1. Having severe mental disorders and
2. Using any kind of psychological intervention and counseling during the research.

Also, from the statistical population of patients who did not have a diagnosis of cardiovascular disease, 50 people were selected by matching method (in terms of age, gender, marital status). After obtaining the necessary permits and with the cooperation of the nursing department, the sample patients were selected. These patients were in the ward after heart surgery. After talking to each patient individually about the objectives of the research and satisfying the patient to cooperate, a questionnaire was provided to him. Patients with higher education and better physical condition filled out the questionnaire themselves. Patients with lower levels of education or poor physical condition were read the questionnaire by the examiner and marked on the answer sheet. If the patient is confused or confused about the meaning of the question, the examiner will provide the necessary explanations for that question. Upon completion, the questionnaires were re-examined by the examiner so that no questions were left out. To select a healthy group, a checklist for assessing the symptoms of coronary heart disease was first developed by the researcher in consultation with professors and experts in the field of heart disease and the Braunwald Heart Disease book, which is the basic book of heart disease, was provided to the patient's companions.

Matched and analyzed taking into account gender, age and education variables. According to this checklist, individuals who did not have symptoms of coronary heart disease and were ready to participate in the study were finally selected and given a questionnaire. Logistic regression analysis was used to analyze the obtained data.

3. Measurement Tools

Ratus Personality Pattern Scale: This scale was developed by Ratus. To determine type A on this scale, people answer 25 questions that have a yes-no answer. The answer is yes (1) and the answer is no (0). The score is as follows: The average score is 13 (more than average tendency to type A less than average tendency to type B more than 20 strong tendency to type A Less than 5 strong tendencies to type B). The validity of this test was higher than 80% based on the studies performed [25]. The classification was used method to obtain the internal validity of this test and the correlation coefficient obtained to evaluate the reliability of the whole test using the Spearman-Brown formula was 91%, which indicates the high validity of the measurement tool. [26]

Personality Type D Scale: The Personality Type D Scale was developed by Denollet and has 14 items that measure the components of negative emotion and social inhibition. Each subject responds to this scale as "never", "rarely", "sometimes", "often" and "always". Cronbach's alpha coefficient of negative emotional subscales of social inhibition was 0.88 and 0.86, respectively. The coefficient of validity of this scale with the personality type scale A has been reported to be 0.63. [26]. In a study conducted by Zoljnahi and Vafaei in Iran, the internal consistency of the negative emotional subscale was negative 0.77 and the internal consistency of the social inhibition subscale was 0.69. In the study of Abolghasemi, Zahed and Narimani, Cronbach's alpha coefficient was reported to be 0.72. [41]

4. Findings

The number of participants in this study was 100, of which 41% were men and 59% were women. The mean age of participants in this study was 42.63 years with a standard deviation of 6.979 and their age range was 30 to 60 years.

Table 1. Model suitability test.

p	df	Chi Square	Step
0.461	8	9.013	1

As it can be seen through the Table 1, considering that $p = 0.641$ and the value of p obtained is more than 0.05, it indicates the suitability of the model; that is, the model would be suitable and accepted.

Table 2. Summary of logistic regression results on disease prediction by personality type A.

95.0% C.I.for EXP(B) Upper	Lower	Exp (B)	Sig.	Df	Wald	S.E	B	Step 1
6.154	0.114	0.836	0.861	1	0.031	1.018	-0.179	Type A personality

As Table 2 shows, the value of the parent statistic of 0.031 does not indicate the usefulness of the personality type A variable and due to the significance level of 0.861, the role of personality type A in predicting coronary heart disease is not confirmed.

Table 3. Summary of logistic regression results on disease prediction by personality type D.

95.0% C.I.for EXP(B) Upper	Lower	Exp (B)	Sig.	Df	Wald	S.E	B	Step 1
3.378	0.005	1.135	0.223	1	1.482	1.644	-2.005	Negative Feelings
4.238	0.118	2.313	0.039	1	0.306	1.517	0.839	Social Inhibition

As Table 3 shows, the value of the parent statistic of 1.482 indicates the usefulness of the negative emotions variable. Personality D has the power to predict the coronary arteries of the heart.

5. Discussion

Based on the findings of the present study, the role of personality type A variable in predicting coronary heart disease is not significant. The above finding is consistent with the results of general research of Kelly, Miller *et al.* and Bakhshipour Rudsari but not consistent with the results of Maghsoudi and Nakhaei, Branwald *et al.* and Taylor. Explaining the above findings, it can be stated that such differences may be due to the type of sampling, assessment tools and research methodology. According to some studies, a positive relationship between type A and heart disease is seen when personality type A is assessed through organized interviews rather than self-assessment tools.[7,14,27-31].

On the other hand, some researchers have stated that only the components such as hostility, aggression, and anger that are seen in the Type A personality pattern are associated with heart disease and heart attack, and vice versa, if a Type A person has hardy personality components, not only He is not vulnerable to physical and mental illness, but his resistance to illness increases compared to normal people [32] Based on this, it can be said that what increased the score of individuals in the Type A questionnaire, other characteristics of this type, was probably except for the hostility variable, something that needs further investigation [33].

Also, based on the findings of the present study, the variables of negative emotions and social inhibition of the subset of the personality type D variable had a unique contribution to the prediction of coronary heart disease in this model. The above finding is consistent with the results of previous research in this field. For example, Williams *et al.* (2008) found that personality type D is a risk factor for cardiovascular disease associated with poor prognosis, impaired health, and emotional distress. It was also conducted a study comparing the components of type D personality in coronary heart patients with healthy individuals. Their findings show that coronary heart disease patients have higher type D personality traits than healthy individuals, but this difference is expected only in the area of negative emotions. Consistent with the findings of the present study, the results of the research of Abolghasemi *et al.* showed that personality type D is one of the variables that almost affects the health behaviors of coronary heart patients [34,26].

Explaining the above finding, it can be stated that personality type D, whether it is considered as a biological phenomenon, i.e. temperament characteristics or as a habitual behavioral pattern, can be effective for heart disease, increase in negative consequences and death from heart disease. [35]. There is likely to be a potential mechanism that could characterize the relationship

D and justify the increase in negative outcomes and mortality in the population of heart patients, including behavioral mechanisms and physiological pathways [36]. For example, Williams *et al.* recently showed that personality type D is

associated with an increase in high-risk behaviors and a decrease in health-promoting behaviors [42]. Type D people are more likely to experience negative emotions such as anxiety, anger, hostile feelings, and depressed moods and inhibition of expressing these emotions in social relationships. Situations associated with fear, anxiety, helplessness, and lack of control can increase cortisol secretion [24], stress experience, and stress expectations are associated with increased salivary cortisol levels; finally, negative emotions are associated with increased cortisol levels. It is important to note that mood changes play a mediating role between stressful life events and cortisol secretion [37]. On the other hand, high cortisol levels can be a mediator between type D and an increased risk of cardiovascular disease and possibly other physical disorders, so it is reasonable to assume that Hypothalamic-Pituitary Adrenal (HPA) axis function in type D people and others. There are other personality traits [38]. Mechanisms through which social inhibition can affect the prognosis of heart patients include reactivity of the cardiovascular system, reduction of heart rate variability, and exacerbation of inflammatory processes. Also, social inhibition can affect the physician-patient relationship, acceptance of treatment, and the promotion of healthy behaviors [21].

Reference

- [1] Massoudnia, Ibrahim. (2011). Hostility, anger and risk of coronary artery atherosclerosis. *Scientific Research Journal of Shahid Sadoughi University of Medical Sciences, Yazd*. Volume 18, Number 6. pp. 551-540.
- [2] Centers for Disease Control and Prevention (CDC). (2017). Interactive Atlas of Heart Disease and Stroke. <https://www.cdc.gov/dhdsp/maps/atlas/>
- [3] Videbeck, SL. (2016). *Psychiatric Mental Health Nursing* (3rd Ed.). Lippincott Williams & Wilkins.
- [4] Hedayegh F, Harati H, Ghanbarian A, Azizi F. (2009). Prevalence of coronary heart disease among Tehran adults: Tehran lipid and glucose study. *East Med Health J*; 1(1)5: 157-66.
- [5] Samavat, T.; Hojjatzadeh, Aleih; Shams, Mohsen; Afkhami, Azadeh; Mahdavi, Alireza; Bashti, Shahnaz; Poor Aram, Hamed; Ghotbi, Marjan and Rezvani, Abolghasem. (2014). Guide to the prevention and control of cardiovascular disease. Ministry of Health, Treatment and Medical Education, Deputy Minister of Health, Non-Communicable Diseases Unit.
- [6] Lett, HS, Blumenthal, JA, Babyak, M., Strauman, T., Robins, C., Sherwood, A. (2015). Social support and coronary heart disease: epidemiologic evidence and implications for treatment. *Psychosomatic Medicine*, 67, 869-878.
- [7] Alipour, A. (2012). *Introduction to Health Psychology*. Tehran: Payame Noor University Press.
- [8] Asadi Mujreh, Samarra; Bakhshipour, Abbas; Poursharifi, Hamid (2014). Relationship between personality type D and its dimensions with perceived stress in students of Tabriz University, *Knowledge and Research in Applied Psychology*, Volume 14, Number 4, 100-92.
- [9] Joshi, Vinay, (2007). *Stress from burnout to balance*, Response books. A division of Sage Publication, New Delhi, Thousand Oaks, London.
- [10] Hosseinpour, M.R & Poursharifi, H. (2016). Predictors of Coronary Heart Disease Based on Personality Factors and Psychological Risk Factors. *JOURNAL OF PSYCHOLOGY & BEHAVIORAL STUDIES*, 4(1), 13-24.
- [11] Maghsoudi, S. Nakhai, M. (2014). Evaluation of personality types A and B of heart patients admitted to hospitals in Kerman. *Bioethics Quarterly*. Third Year, No. 8, 156-133.
- [12] Davison GC, Neale JM. (2004). *Abnormal psychology*. 8th ed. *New York: John Wiley and Sons*.
- [13] Moller J, Ahlhome A. (1999). Do episodes of anger trigger myocardial infarction? *J Psychosom Med*; 61(6): 842-9.
- [14] Kelly GB, Timothy WS, Jonathan B, Neuley MJ, Hawkins MW, Uchino BN. (2007). Hostility, anger and marital adjustment: Concurrent and prospective association with psychosocial vulnerability. *J Behavior Med* 2; 30(1): 1-10.
- [15] Kuper H, Marmot H. (2002). Systematic review of Prospective cohort studies of psychosocial factors in the etiology and prognosis of coronary heart disease. *Semin Vasc Med*; 2: 276-314.
- [16] Matthews KA. (2005). Coronary heart disease. *American Psychologist*; 45: 783-96.
- [17] Howard, S., Hughes, B.M., & James, J.E. (2011). Type D personality and hemodynamic reactivity to laboratory stress in women. *International Journal of Psychophysiology*, 80, 96-97.
- [18] Grand, G., Romppel, M., & Barth, J. (2012). Association between Type D Personality and prognosis in patients with Cardiovascular Diseases: a systematic review and meta-analysis. *Annual Behavioral Medicine*, 43(3), 299-310.
- [19] Denollet J, Conraads VM, Brutsaert DI, Clerck LD, Stevens WJ, Vrints CL. (2013). Cytokines and immune activation in systolic heart failure: The role of type-D personality. *Brain Behav Immun*, 17(4): 304-9.
- [20] Denollet J, and Conraads M. (2011). Type D personality and vulnerability to adverse outcomes in heart disease. *Cleve Clin J Med*. Aug; 78(Suppl 1): 9-13.

- [21] Denollet J.D.S. (2005). Standard assessment of negative affectivity, social inhibition, and Type D personality. *Psychosomatic Medicine*. 67: 89-97.
- [22] Bagherian Sararudi, R. (2010). Personality Type D. *Behavioral Science Research*, Volume 7, Number 1. 87-75.
- [23] Hashemi, Touraj; Peyman Nia, Bahram. (2014). Relationship between personality type (D) and perceived stress with health behaviors in women with breast cancer patients. *Psychiatric Nursing*. 4. 1.36-44.
- [24] Pedersen SS, Denollet J. (2003). Type D personality, cardiac events, and impaired quality of life: a review. *Eur J Cardiovasc Prev Rehabil*; 10(4): 241-8.
- [25] Ganji, H. (2003). Personality evaluation. Tehran: Savalan.
- [26] Abolghasemi, A., Taghipour, M. and Narimani, M. (2013). Relationship between personality types D, self-compassion and social support with health behaviors in coronary heart disease patients. *Journal of Health Psychology*. No. 1. 19-5.
- [27] Miller TQ, Smith TW, Turner CW, Guijarro ML, Hallet AJ. (1996). A meta- analytic review of research on hostility and physical health. *Psychol Bull*; 119(2): 322- 348.
- [28] Bakhshpour Rudsari, A. (1998). Investigating the relationship between type A personality and the stress experienced with the occurrence of heart attack. *Psychological research*. Volume 4. No. 3 and 4. 14-3.
- [29] Braunwald, E., Zipes, D., & Libby, P. (2001). *Heart disease: a text book of cardiovascular medicine*. Philadelphia: W. B. Saunders Company.
- [30] Taylor, G. (2000). An overview of self-help initiatives within health care. Report prepared for Hemophilia program for Ontario hospital. Vancouver, B. C. V6J1W3 .
- [31] Walsh, J.J., Wilding, J.M. & Eysenck, M.W. (1994). Stress Responsivity: The Role of individual difference. *Personality and Individual Differences*, 3, 385-394.
- [32] Kobasa, S.C. (1979). Stress life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, 37, 1-11.
- [33] 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 behavior and social support. *Journal of Psychosomatic Research*. 64 (1): 63-69.
- [34] Roshan, R. Mohammadi, J. Rajabi, M. Salesi, and R. Jalali, M. (2014). Comparison of personality components of type D and quality of life of coronary heart patients with healthy individuals. *Journal of Behavioral Sciences*. Volume 7, Number 2. 150-143.
- [35] Schiffer AA, Pedersen SS, Widdershoven JW, Hendriks EH, Winter JB, Denollet J. (2005). The distressed (type D) personality is independently associated with impaired health status and increased depressive symptoms in chronic heart failure. *Eur J Cardiovasc Prev Rehabil*; 12(4): 341-6.
- [36] Williams, G., Stark, J. K., Shannon, S., Foster, E.E., (2008). The Relationships among Self-compassion, Motivation, and Procrastination. *American Journal of Psychological Research*, 4(1), 37-44.
- [37] Habra ME, Linden W, Anderson JC, Weinberg J. (2003). Type D personality is related to cardiovascular and neuroendocrine reactivity to acute stress. *J Psychosom Res* 2003; 55(3): 235-45.
- [38] Molloy GJ, Perkins-Porras L, Strike PC, Steptoe A. (2008). Type-D personality and cortisol in survivors of acute coronary syndrome. *Psychosom Med*; 70(8): 863-8.
- [39] Mozaffarian D, Roger VL, Benjamin EJ, Berry JD, Blaha MJ, et al. (2014). Heart disease and stroke statistics—2014 update: a report from the American Heart Association. *Circulation*; 128.
- [40] Pedersen SS, Denollet J. (2003). Type D personality, cardiac events, and impaired quality of life: a review. *Eur J Cardiovasc Prev Rehabil*; 10(4): 241-8.
- [41] Junge P, Denollet J, Van Melle J, Kuyper A, Honig A, Hschene A, et al (2007). Association of Type-D personality and depression with somatic health in myocardial infarction patients. *J Psychosom Res*; 63(5): 477-89.
- [42] Yarmohammadian, A. (2006). Relationship between personality traits and type A behavior using Eysenck personality test. *Clinical Psychology Research and Counseling*, 07 (2). 139-152.