

ORIGINAL RESEARCH

Personality Types A and B Among Patients with Cardiovascular Disease in Khorramabad, West Iran

Dos tipos de personalidad (A y B) entre pacientes con enfermedad cardiovascular en Khorramabad, Irán occidental

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Abstract

Background/Objectives. Personality traits can influence the morbidity of cardiovascular diseases (CVDs). This study aimed to examine the prevalence of Type A and Type B personality patterns among hospitalized patients with CVDs in Khorramabad (a settlement of the Lur people in western Iran) and to explore associations with demographic and clinical factors. **Methods.** This descriptive cross-sectional study included 180 patients with CVDs (mean age: 55.44 ± 11.94 years) admitted to Shahid Madani Hospital, Khorramabad, in 2020. Data were collected using a two-part questionnaire: the first part recorded age, sex, smoking status, type of CVD, and history of diabetes, and the second part assessed personality type (A/B) using a standardized inventory. Data were analyzed with SPSS version 22 using descriptive statistics and chi-square tests. **Results.** Of the 180 participants, 99 were men and 81 were women. The majority had hypertension ($n = 82$; 45.5%), a history of smoking ($n = 107$; 59.4%), and no history of diabetes ($n = 111$; 61.7%). Overall, 41 patients (22.8%) exhibited Type B personality and 139 (77.2%) exhibited Type A personality. A significant association was observed between personality type and type of CVD ($p = 0.002$), but no significant differences were found regarding age, gender, smoking status, or history of diabetes. **Conclusion.** Consistent with findings from other countries, individuals of the Lur ethnicity in western Iran with Type A personality appear to be at greater risk of developing CVDs. Psychological interventions should be considered alongside physical treatments to address unhealthy behaviors that may worsen disease outcomes.

Keywords: Personality traits, type A personality, cardiovascular diseases

Resumen

Antecedentes/Objetivos. Los rasgos de personalidad pueden influir en la morbilidad de las enfermedades cardiovasculares (ECV). Este estudio tuvo como objetivo examinar la prevalencia de dos patrones de personalidad (A y B) entre pacientes hospitalizados con ECV en Khorramabad (un asentamiento del pueblo Lur al oeste de Irán) y explorar su asociación con factores demográficos y clínicos. **Métodos.** Este estudio transversal descriptivo incluyó a 180 pacientes con ECV (edad media: 55.44 ± 11.94 años) ingresados en el Hospital Shahid Madani, Khorramabad, en 2020. Los datos se recabaron mediante un cuestionario de dos partes: la primera registró la edad, sexo, prevalencia de tabaquismo, tipo de ECV y antecedentes de diabetes; la segunda evaluó el tipo de personalidad (A/B) mediante un inventario estandarizado. Los datos se analizaron con el programa SPSS versión 22 mediante estadística descriptiva y la prueba de chi-cuadrada. **Resultados.** De los 180 participantes, 99 eran hombres y 81 mujeres. La mayoría presentaban hipertensión ($n = 82$; 45.5%), antecedentes de tabaquismo ($n = 107$; 59.4%) y no tenían antecedentes de diabetes ($n = 111$; 61.7%). En total, 41 pacientes (22.8%) presentaron personalidad tipo B y 139 (77.2%) personalidad tipo A. Se observó una asociación significativa entre el tipo de personalidad y el tipo de ECV ($p = 0.002$), pero no se encontraron diferencias significativas en cuanto a edad, sexo, tabaquismo o antecedentes de diabetes. **Conclusión.** En consonancia con los hallazgos de otros países, las personas de la etnia Lur del oeste de Irán con personalidad tipo A parecen tener un mayor riesgo de desarrollar ECV. Se deben considerar intervenciones psicológicas junto con tratamientos físicos para abordar los comportamientos no saludables que pueden empeorar el pronóstico de la enfermedad.

Palabras clave. Rasgos de personalidad, personalidad tipo A, enfermedades cardiovasculares





Figure 1. Geographical location and the map of Lorestan province

Introduction

Cardiovascular diseases (CVDs) are the leading cause of death in the world and are responsible for high economic healthcare costs^[1,2]. They are diseases that involve the heart or blood vessels, such as stroke and heart failure. According to the World Health Organization, over three-quarters of CVD deaths occur in low- and middle-income countries such as Iran^[3]. Recent studies have shown the association of psychosocial factors (e.g., low socioeconomic status, genetics, stress, depression, anxiety) with CVDs^[4-6]. Among the several psychosocial factors, personality traits of an individual have been shown as an important factor affecting the morbidity of CVDs^[7,8]. Personality refers to the dynamic and organized set of characteristics a person possesses that uniquely influences their cognition, emotions, motivations, and behaviors in various situations^[9]. It is a multidimensional construct with different consequential outcomes. It shapes how an individual reacts to stressful situations. Personality types can generally be classified as type A and type B. However, many individuals may have a mixture of both traits or show a more complex personality type such as types C and D. Type A individuals are often aggressive, ambitious, controlling, highly competitive, preoccupied with status, workaholics, hostile, and lack patience. Type B people are less competitive, relaxed, less stressed, flexible, emotional, and expressive, and have a laid-back attitude. Type C personality is characterized by precision, accuracy, and attention to detail. Individuals with this personality tend to be analytical and logical and prefer to work with facts. Type D personality is characterized by having negative emotions such as anger, irritability, sadness, and worry but suppressing them to cope with stressful events^[10]. Since CVDs are

often associated with specific adverse behaviors, personality types may be associated with the development and prognosis of CVDs. Personality types cause heart diseases through behavioral, psychological, and biological mechanisms^[11].

The association of personality with CVDs was first identified by Friedman and Rosenman in 1959^[12], who showed that people with type A personality were prone to CVDs. Later, other studies also showed that type A personality can increase the incidence of CVDs more than type B personality^[13-16]. Type A individuals often seek challenging and competitive situations and tend to smoke more and consume more alcohol than type B individuals. This predisposes them to have a greater risk of CVDs^[15]. Some studies reported Type D personality as a risk factor for CVDs^[17-19]. Steca et al. reported a combination of types A and D personality in patients with hypertension and acute coronary syndrome^[20]. There are other studies that reported the association of the big five personality traits (extraversion, neuroticism, openness, agreeableness, conscientiousness) with CVDs^[21-26].

We found few studies in Iran investigating personality type A in CVD patients. Ranjbar et al.^[27] reported that, among 100 patients with hypertension admitted to heart clinics in Tabriz, northeast of Iran, 54% had type A personality and 38% had type B personality. Maghsoudi and Nakhaei^[28] in a study on 100 hospitalized patients with coronary artery disease in Kerman, southeast of Iran, reported that 82% had type A personality. Farnodi et al. reported that among 50 patients with type 2 diabetes (a risk factor for CVDs) in Kermanshah, Iran, 17 had type B personality and 33 had type A personality^[29]. Sadeghi et al. found no significant relationship between hostility and anger (two components of type A

personality) and the incidence of coronary heart disease in patients admitted to a hospital in Kermanshah, Iran^[30].

It is important to identify the personality characteristics of patients with CVDs, because these characteristics are closely related to a person's reaction to treatment. The presence of negative personality traits reduces the effectiveness of treatment and is related to the survival and longevity of patients. Regarding this, and considering that limited studies have been conducted in the west of Iran, which is a low-income region, this study aims to investigate personality types A and B in hospitalized patients with CVDs in Khorramabad city, Lorestan Province, west of Iran (Fig.1). This province is the main settlement of the Lur people (one of the ancient ethnic groups of Iran).

Methods

This is a descriptive cross-sectional study. The study population consists of all patients with CVDs admitted to *Shahid Madani* Hospital in Khorramabad city in 2020. Using the formula, $n = (Z_{1-\alpha/2})^2 \times p(1-p)/d^2$, the sample size was determined to be 180 at a 95% confidence interval, considering $Z_{1-\alpha/2}=1.96$, $p=0.60$, and error margin $(d)=0.72$ [27]. In this regard, 180 patients were selected using a convenience sampling method based on the inclusion criteria: Cardiovascular problems, reading and writing literacy, and consent to participate in the study. The exclusion criteria were the return of an incomplete questionnaire and unwillingness to continue participation in the study. After obtaining ethical approval from Lorestan University of Medical Sciences and written informed consent from the participants, the data were collected using a two-part questionnaire. The first part surveys age, sex, smoking, type of CVD, and history of diabetes. The second part was the type A/B personality test, developed by Ganji et al. [31] in Persian based on Friedman and Rosenman's theory [32]. It has 25 items measuring personality types A and B. The items are answered by Yes (1 point) or No (0 points). The total score ranges from 0 to 25; a score ≥ 13 indicates having more of a type A personality, and a score < 13 shows having more of a type B personality. This questionnaire has been used in Iran in the studies by Sepehrian and Jokar [33] on college students, Shaygannejad et al. [34] on patients with multiple sclerosis, and Shafiei et al. [26] on patients with CVDs. They reported its acceptable validity and reliability. The Cronbach's alpha values in their study were reported as 0.62, 0.70, and 0.76-0.81, respectively. In our study, this questionnaire's Cronbach's alpha coefficient was obtained at 0.78. After collecting the data, they were analyzed in SPSS v.22

software by using descriptive statistics (frequency, percentage, mean, standard deviation) and chi-square test (to measure the difference between patients with personality types A and B based on demographic/clinical factors). The significance level was set at 0.05.

Results

The mean age of participants was 55.44 ± 11.94 years, ranging from 36 to 80 years. Of 180 participants, 99 (55%) were male, and 81 (45%) were female. Most of them had age > 60 years ($n=65$, 36.1%). The majority of them had hypertension ($n=82$, 45.5%) and heart attack ($n=46$, 25.6%), with a history of tobacco smoking ($n=107$, 59.4%), and with no history of diabetes ($n=111$, 61.7%). For more information, see Table 1.

Table 1. Demographic/clinical characteristics of participants

Characteristics	N	%	
Age (year)	≤ 45	64	35.6
	46-60	51	28.3
	> 60	65	36.1
Gender	Male	99	55
	Female	81	45
Type of cardiovascular disease	Heart attack	46	25.6
	Hypertension	82	45.5
	Heart failure	30	16.7
	Embolism	16	8.9
	Other	6	3.3
History of diabetes	Yes	69	38.3
	No	111	61.7
Smoking	Yes	107	59.4
	No	73	40.6

Table 2 shows the frequency of answers to the type A/B personality test items. According to these answers, it was found that 41 patients had type B personality (22.8%) and 139 had type A personality (77.2%). Based on the results in Table 3, most of the patients with type A personality ($n=51$ out of 139; 79.7%) were in the age group of ≤ 45 years, while most of the patients with type B personality ($n=13$ out of 41; 20.3%) were in the age group of > 60 years. The chi-square test results showed no significant difference between patients with personality types A and B based on age ($p=0.051$).

Table 2. Frequency of answers to the items of the type A/B personality scale

No.	Item	No,n(%)	Yes,n(%)
1	Do you emphasize certain words in your daily conversations?	68(37.8)	112(62.2)
2	Do you eat and talk fast?	32 (17.8)	148(82.2)
3	In your opinion, is it right to teach children to be the best?	8(4.4)	172(95.6)
4	Do you get frustrated when someone perform tasks at a slower pace?	75(41.7)	105(58.3)
5	Do you ask others to do things quickly when they are speaking?	87(48.3)	93(51.7)
6	Do you get mad when you feel restricted or have to wait to take a table in a restaurant?	123(68.3)	57(31.7)
7	When someone is talking to you, do you still follow your own thoughts?	68(37.8)	112(62.2)
8	Do you eat breakfast while shaving or wearing makeup?	12(6.7)	168(93.3)
9	Does it happen to work during the summer holidays?	65(36.1)	155(63.9)
10	Do you moderate discussions about your favorite topics?	74(41.1)	106(58.9)
11	Do you feel bad if you spend so much time with others?	85(47.2)	95(52.8)
12	Do you get so busy with work that you don't notice others or changes in home decoration?	113(62.8)	67(37.2)
13	Are you more concerned with materialistic things than social issues?	90(50)	90(50)
14	Do you try to complete your tasks in the shortest possible time?	66(36.7)	114(63.3)
15	Do you always arrive on time for an appointment?	83(46.1)	97(53.9)
16	Have you ever clenched your fists or punched to express your attitude?	54(30)	126(70)
17	Do you attribute your success to your ability to work quickly?	87(48.3)	93(51.7)
18	Do you feel that things should be done right now and quickly?	33(18.3)	147(81.7)
19	Do you always try to use the most efficient tools at work?	78(43.3)	102(56.7)
20	When playing, do you try to win rather than having fun?	58(32.2)	122(67.8)
21	Do you often interrupt others?	66(36.7)	114(63.3)
22	Do you get angry when people are late?	89(49.4)	91(50.6)
23	Do you leave the table after finishing a meal?	63(35)	117(65)
24	Do you feel rushed?	71(39.4)	109(60.6)
25	Are you unhappy with your current performance?	89(49.4)	91(50.6)

Table 3. Frequency of personality types in patients based on demographic/clinical characteristics

Characteristics		Type A, n(%)	Type B, n(%)	P value*
Age (year)	≤45	51(79.7)	13 (20.3)	0.051
	46-60	44(86.3)	7(13.7)	
	>60	44(67.7)	21(32.3)	
Gender	Male	75(75.8)	24(24.2)	0.721
	Female	64(79)	17(21)	
Type of CVD	Heart attack	33(71.7)	13(23.8)	0.002
	Hypertension	60(73.2)	22(26.8)	
	Heart failure	26(86.7)	4(13.3)	
	Embolism	14(87.5)	2(12.5)	
	Other	6(100)	0(0)	
History of diabetes	Yes	54(38.8)	15(36.6)	0.472
	No	85(61.2)	26(63.4)	
Smoking	Yes	81(58.3)	26(63.4)	0.344
	No	58(41.7)	15(36.6)	

* Chi-square test

Based on sex, most of the patients with type A personality (n=75 out of 139; 75.8%) and type B personality (n=24 out of 41; 24.2%) were male. The chi-square test results showed no significant difference between patients with personality types A and B in terms of sex (p=0.721). Based on the type of CVD, most of the patients with type A personality (n=60 out of 139; 73.2%) and type B personality (n=22 out of 41; 26.8%) had hypertension. The chi-square test results showed a significant difference between patients with personality types A and B based on the CVD (p=0.002). Most of the patients with type A personality (n=81 out of 139; 58.3%) and type B personality (n=26 out of 41; 63.4%) were smokers. The results of the chi-square test showed no significant difference between patients with personality types A and B in terms of smoking (p=0.344). Most of the patients with type A personality (n=85 out of 139; 61.2%) and type B personality (n=26 out of 41; 63.4%) had no history of diabetes. The chi-square test results showed no significant difference between patients with personality types A and B in terms of the history of diabetes (p=0.472).

Discussion

Personality type has been widely studied as a risk factor for CVDs. The purpose of this study was to investigate the personality type (A/B) of 180 hospitalized patients with CVDs in Iran based on some demographic/clinical characteristics. Most of the patients were male, smokers, with hypertension, and without a history of diabetes. The results showed that only 41 (22.8%) had type B personality. Most of them (n=139, 77.2%) had type A personality, who showed a feeling of urgency and lack of patience and were aggressive, ambitious, highly competitive, and sensitive to time. These feelings create pressure and stress for these patients, which can become a daily habit for them. Our results are consistent with the results of other studies that reported that people with type A personality are at higher risk of CVDs [12-16], but are against the results of Ikeda et al. [35]. They showed that Japanese men with lower levels of type A personality (lower levels of impatience, aggressiveness, and competitiveness) were at higher risk of coronary heart disease. Maghsoudi and Nakhaei [28] also reported a high type-A personality prevalence of 82% in patients with coronary artery disease in Kerman, southeast Iran. In Ranjbar et al.'s study on 100 patients with hypertension in Tabriz, northeast of Iran, 54% had type A personality, and 38% had type B personality [27]. In our study, 82 patients (out of 180) had hypertension, of whom 73.2% had type A personality and 26.8% had type B personality.

Most of the patients with type A (79.7%) in this study were in the age group ≤ 45 years. This age group has more social responsibilities and thus suffers from more stress. This is consistent with the results of Heydari Pahlavian et al. [36]. They showed that younger patients (<50 years) with myocardial infarction had higher hostility and anger (two symptoms of type A personality). In the present study, the prevalence of CVDs was higher among patients with type A personality compared to those with type B personality, and this difference was statistically significant. However, there were no significant differences between CVD patients with personality types A and B in terms of age, gender, history of smoking, and diabetes. Eugen et al., in a study in Romania, also showed that Type A personality was not related to smoking behavior [37]. Farnodi et al. showed a significant relationship between personality type A and diabetes type 2 [29], which is not consistent with our results. In our study, among CVD patients, 69 had a history of diabetes, of whom 54 had type A personality and 15 had type B personality. In Farnodi et al.'s study, among 50 patients with diabetes in Kermanshah, Iran, 17 had type B personality and 33 had type A personality. The discrepancy in the results can be related to differences in the study samples and study areas.

This is the first study that measures personality types A and B in hospitalized patients with CVD in west of Iran. In this regard, we found no other studies to compare our results with their findings. Other limitations of this study include the use of a self-report tool (which has a risk of response bias) and not identifying the predictors of type A personality in the patients. In this regard, further studies are recommended using objective methods (e.g., interviews) and identify the factors that can predict the type A personality in patients with CVDs. Moreover, since our study was conducted in one city of Iran (Khorramabad), it should be cautious in generalizing the results to all CVD patients in Iran.

Conclusion

Among hospitalized patients with CVDs in Khorramabad City, 77.2% were identified as having a type A personality and 22.8% as having a type B personality. This finding aligns with previous studies showing that individuals with type A personality are at higher risk of developing CVDs. Integrating psychological interventions to address maladaptive behavioral patterns—alongside standard physical treatments—may help reduce CVD risk and improve patient health outcomes.

No significant differences in personality type were observed across age, gender, smoking history, or diabetes history. Therefore, regardless of these factors, psychological interventions should be considered as a complementary approach to physical treatments for patients with CVDs. Nurses, in particular, should tailor their interventions to patients' personality types to better identify and address maladaptive patterns, ultimately improving cardiovascular outcomes.

Declarations

Ethical considerations. In this study, all ethical principles were considered. The study was approved by the ethics committee of Lorestan University of Medical Sciences (Code: IR.LUMS.REC.1399.354). **Author contributions.** Design, writing, data collection, methodology: RM; data analysis, supervision, project administration, editing & review: PB. All authors approved the final draft of the manuscript. **Availability of data and materials.** The datasets used and analysed during the current study are available from the corresponding author on reasonable request. **Funding.** This study was extracted from the PhD thesis of the second author. It was not funded by any organization. **Conflict of interest.** The authors declare no conflict of interest. **Acknowledgments.** The authors would like to thank the personnel of Shahid Madani Hospital in Khorramabad City, Dr. Sara Shemshadi (Cardiovascular specialist) for assistance and all patients for their cooperation in this study.

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