**Internal Medicine and Medical Investigation Journal**
E-ISSN: 7750-2474
Homepage: www.imminv.com

## ORIGINAL ARTICLE

# Personality Disorders in Patients with Acute Coronary Syndrome

**Running Title:** Personality Disorders and Acute Coronary Syndrome

Mohammad Moein Dehesh[1], Hossein Sadeghi[1*], Mahin Eslami Shahrbabaki[2], Reihanehsadat Hosseini[3]

[1]*Clinical Cardiovascular Research Center, Shafa Hospital, Kerman University of Medical Sciences, Kerman, Iran*

[2] *Psychiatry Department, Shahid-Beheshti Hospital, Kerman University of Medical Sciences, Kerman, Iran*

[3] *Clinical Research Development Unit, Afzalipour Hospital, Kerman University of Medical Sciences, Kerman, Iran*

[*] **Corresponding Author:** Hossein Sadeghi, Assistant professor of Cardiology, Eamil: Dr.sadeghi.ir@gmail.com

## ARTICLE INFO

Article history Received:
March 09, 2021
Accepted: March 12, 2021
Published: March 16, 2021
Volume: 5
Issue: 4

**Key words:**
*Personality Disorder,*
*Heart,*
*Acute Coronary Syndrome,*
*Iran*

## ABSTRACT

**Introduction**: Physical factors predict up to 50% of the incidence of Coronary Heart Disease (CHD). Multiple influencing factors got analyzed but personality disorders have been noticed recently. Accordingly, we aimed to assess Personality Disorders (PD) in patients with Acute Coronary Syndrome (ACS). **Materials and Methods**: In this study, 82 hospitalized patients with ACS in the cardiac care unit and 85 patients of other units of two university referral hospitals in Kerman (southeastern of Iran) were recruited. The sampling method was a census and all hospitalized literate patients were evaluated during the study period. Demographic and background information were recorded. The Millon Clinical Multiaxial Inventory (MCMI-III) questionnaire was completely filled for each person. The SPSSver22 software was used to analyze the data.**Results**: On the basis of age, gender, marital status, education, and occupation, both of the groups were matched. Avoidant/depressive personality disorder was the most common disorder suchlike included 41% of the ACS group and 31% of the control group (P=0.19). Obsessive-Compulsive Personality Disorder (OCPD) was observed in 30% of the ACS group and 16% of the control group (P=0.04). Histrionic Personality Disorder (HPD) was seen in 28% of the ACS group and 23% of the control group (P=0.59). In total, 81% of the ACS group and 66% of the control group had at least one Personality Disorder (P = 0.02). **Conclusion**s: High prevalence of personality disorders in patients with ACS and the significant difference in comparison to other hospitalized patients suggests serious psychiatric follow-up and treatments for them.

## INTRODUCTION

Along with cancer and stroke, Coronary Heart Disease is considered to be one of the three main causes of death in most industrialized countries (1). The prevalence of heart disease is increasing rapidly in developing countries and it is expected to be the major cause of mortality in the next decades (2). Today, well-known physical factors are associated with Coronary Artery Disease, among which Hypertension, high levels of cholesterol, diabetes, lack of physical activity, obesity, and heredity can be indicated (3). However, the evidence suggests that physical factors predict up to 50% of the existence of Coronary Artery Disease and these are not the only factors that explain the incidence and continuation of this disease. Recent advances in behavioral medicine have attracted the attention of health psychologists to the key role of non-biological factors in Coronary Artery Disease, and research on this disease has focused on psychological and social factors (4). In cardiovascular diseases, excitement, expression, or suppression of excitement are some of the influential psychological factors that can contribute to the onset or exacerbation of Coronary Artery Disease. Friedman and Rosenman were the first researchers who realized the role of psychological factors in the onset of heart diseases and the result of their work identified the type A and B personality and indicated that personality type is particularly connected to Coronary Heart Disease (5).

Recently, the personality type that has been proposed as the predictor of Coronary Artery Disease, along with cancer and stroke, was type D or Distressed Personality type. Several studies were conducted in this field that reported the relationship between anger, suppressed excitement, anxiety, depression, and introversion. All of these are characteristics of type D personality and also the symptoms of cardiovascular diseases (6-13). Meanwhile, only one study in 2007 has examined clinical syndromes of personality disorders from a psychiatric perspective, not from a psychological viewpoint. This study is a part of an enormous national epidemiological study in America. The results of this study showed that 5.2%

of people without heart disease and 7.8% of people with heart disease have an obsessive character which is a statistically significant difference. The Schizoid and Paranoid Personality Disorders were the terms used in abundance (14).
Except for the above study, other studies have also primarily focused on the personality axis and psychological aspects of personality. There was no study to examine personality disorders clinically in people with heart disease. Therefore, we evaluated clinical syndromes of personality disorder in patients with acute coronary syndrome by a controlled study. It has been expected that our study will be a step towards better identification and treatment of these patients.

## MATERIALS AND METHODS

### Participants

This study was conducted on 172 participants divided into two groups. General criteria of participation in the study included: education higher than primary school and not having major psychiatric illnesses certified by a physician. The first group participants were those patients with Acute Coronary Syndrome who had been admitted to the cardiac care unit (CCU) of two referral university hospitals in southeastern Iran–Kerman (Afzalipour and Shafa hospital) for two months in a row and had the conditions listed above in the study. The number of patients was 86, among which 4 patients were excluded because of incomplete answers to the questionnaires. After the primary analysis of their demographic information of the first group, 88 patients aged 43 to 63 years without any background heart disease were selected as the second group participants who were admitted to other units of two hospitals including Gastroenterology, Pulmonology, Rheumatology, Nephrology, Infectious diseases, surgery, Ophthalmology, and Otolaryngology units. Three patients with incomplete responses to the questionnaire were excluded from the study. The mean age and sex of participants in the second group in the middle and at the end of the sampling did not differ significantly in comparison to the first group.

### Basic Information and Medical Conditions

Background information includes age, gender, education, marital status, occupation, and any underlying chronic disease diagnosed by a physician, were obtained from all patients. Information was collected by interviewing the participant and his/her trusted companion as well as by referring to his/her medical records.

### Personality Disorder Assessment

Millon Clinical Multiaxial Inventory-III (MCMI-III) Questionnaire was provided for all patients to evaluate personality disorders. The physician and in charge of the project was in touch during completing the questionnaire to guide the participants in case of having any questions.
Millon's psychometric questionnaire is one of the few questionnaires that assess clinical syndromes of personality disorder. This questionnaire is self-administered and evaluates 14 clinical personality disorders as well as 10 clinical syndromes. This questionnaire has been translated into Persian in Iran; its validity and reliability have been measured and has been introduced as a perfectly suitable device for clinical use (15).

### Statistical Analysis

SPSS software version 20 was used for statistical analysis of data. Descriptive statistical tests included mean, standard deviation, frequency and analytical tests included T-test, Chi 2 and Fisher's Exact.

## RESULTS

In this study 82 subjects with ACS admitted to CCU and 85 patients hospitalized in other units of the hospital were evaluated. The demographic information of the two groups has been presented in Table 1. The mean age of the ACS group was 53 years with 40% female and the mean age of the control group was 51 with 46% female which was not significantly different (P = 0.39, P = 0.46 respectively). In the ACS group, 93% of participants were married, 5% widowed, 1% divorced, and 1% single. Whereas these percentages in the control group were 91%, 4%, and 5%, respectively. Without a single person which showed no significant difference (P = 0.24). Education level and occupation in these two groups were not significantly different (P = 0.07, P = 0.11 respectively). (Table 1)
Out of all ACS patients, 55% of them had other associated chronic diseases and the most common were diabetes and high blood pressure. In the control group, 16% of patients had no record of an underlying chronic disease. (Table 1)
The most common personality disorder in subjects was Avoidant / Depressive disorder that included 41% of ACS and 31% of the control group (P = 0.19). Obsessive-compulsive Personality Disorder was observed in 30% of the ACS group and 16% of the control group (P = 0.04). Histrionic Personality Disorder showed no significant difference between these two groups and was observed in 28% of ACS and 23% of control groups respectively (P = 0.59). Other personality disorders had lower frequency in both groups and only Antisocial / Aggressive Personality Disorder with a frequency of 8% in the control group and 2% in the ACS group was nearly significant (P = 0.08). In total, 81% of the ACS group and 66% of the control group had at least one personality disorder (P = 0.02). (Table 2).

## DISCUSSION

In this study, we examined clinical syndromes of personality disorder in patients with ACS and compared them with other patients admitted to the hospital. The results indicated a high prevalence of personality disorders in patients with heart attack admitted to CCU (81%) which was significantly higher than people admitted to other units of the hospital (66%).
In the previous years, some studies have been carried out on the relationship between personality and physical diseases including cardiovascular diseases. One of the oldest studies is the Friedman et al study in 1987. In this study, it was said that the relationship between personality factors and Coronary Heart Disease is one of the most important and challenging issues in psychology and health. The results of the

study reported the relationship between type A personality as well as anxiety and depression and coronary heart disease (16). In two studies in 1998 and 2000, Denalt and colleagues reported type D personality as an independent factor predicting long-term mortality and worse prognosis in patients with Coronary Heart Disease (11, 12).

Thereafter other studies were carried out and all of them confirmed the previous studies. This can be seen in a 2005 review by Evil. This study mentioned that Distressed Personality or Type D personality with characteristics including a tendency toward experiencing negative emotions and trying to prevent it by social avoidance was introduced as a risk factor for morbidity and mortality of patients with heart disease. Also, higher levels of cortisol and its possible role in increasing the risk of heart disease in people with type D personalities were reported. This review also suggested further studies in these patients for better therapeutic approaches (17).

In 2014, Lee and colleagues in a large epidemiological prospective study examined and followed up a large number of participants. Results showed that openness and extraversion reduce the occurrence of Coronary Heart Disease (13).

Some studies had different results such as Shafi'ee and colleagues' in 2001 noted that extraversion, accountability, being pleasant and mental health in people with heart disease are not different from ordinary people (18).

Among all the aforementioned studies which examined personality disorders and proved that there is no doubt about the link between Personality Disorders and Coronary Heart Disease. We only found one study in the literature that investigated clinical personality disorders based on DSM-IV criteria in patients with a heart attack.

A study was conducted in 2007 in the United States to examine the aspects of clinical personality disorders in terms of psychiatry, not in psychology. In this study, 10573 normal people over the age of 60 were studied as a part of a major national epidemiological study. Of these, 13% had Coronary Artery Disease. The results of this study showed that 5.2% of people without heart disease and 7.8% of people with heart disease had Obsessive Personality Disorder that was statistically significant (OR = 1.37). Schizoid Personality (1.5% vs. 3.4%) (OR = 1.63) and Paranoid (1.8% vs. 3.1%) (OR = 1.24) were next in frequency which were statistically significant (14).

The result of our study shows a much higher prevalence of personality disorders in patients with Coronary Heart Disease. The main differences between our study and the study conducted in the U.S.A are the diagnostic method and sampling site. We used a questionnaire for patients admitted to CCU and other units of the hospital but in the study conducted in the U.S.A, samples were selected from the public and examined in person using DSM-IV criteria. Besides, the analysis procedure in this study, exclusion, and lack of cooperation of almost 20% of selected people can cause a significant sampling bias in personality disorders evaluation. For participants with a personality disorder that may not cooperate and the prevalence of personality disorders in the studied population can be wrongly reported as low. But in the present study, all people who had been hospitalized in CCU during the two months sampling period and eligible for the study were enrolled in the research. Encouraging and persuading the patients were the most important strategies for getting cooperation from the patients.

The most common personality disorders in our study were avoidance /depression, Obsessive-compulsive, and Histrionic Disorders which were different from Robert and colleagues' study. The frequency of Obsessive Personality Disorder was much lower than in the present study but the frequency of Schizoid and Paranoid Personality Disorder was similar to this research. (14)

## CONCLUSION

In conclusion, the high prevalence of personality disorders in patients with Coronary Heart Disease needs considerable attention. Also, according to the proven relationship between occurrence and progression of a large number of diseases in the background of personality disorders, it may be necessary to take psychiatric therapeutic actions and to follow up a significant number of patients with Coronary Heart Disease. Prospective and interventional studies are highly recommended to treat personality disorders in patients with a heart attack as well as prognosis to follow-up a more comprehensive program for the treatment of Coronary Heart Disease which is the most common cause of death in current communities.

## LIMITATIONS

Like any questionnaire-based study, wrong answers and filling the questionnaire without attention were the limitations. We explained all study goals, methods, and confidential data collection to participants. Also, we encouraged them to answer the questions carefully to help us in achieving clear results in our research. The second limitation was illiterate patients. Before beginning the study, we evaluated illiterate patients and concluded that they cannot answer the questions properly even with the help of the physician. So we excluded them from the study. The third limitation was sampling for the control group. This was very difficult because we assessed a psychiatric component. After the consultation, we picked up patients from other units of the same hospitals. They were in the same socioeconomic status and suffering an acute on chronic illness which put them in the setting of hospitalization. Therefore, the exact effect of CAD can be compared properly. A randomly selected second control group from the population may also be useful.

## ACKNOWLEDGMENT

We are thankful to Dr. Moghaddameh Mirzaee and Dr. Mina Danaei, for data analysis and statistical consultation. Moreover, we appreciate the management of Shafa and Afzalipoor hospital for their kind cooperation in this research.

## AUTHOR CONTRIBUTIONS

All authors contributed equally

## CONFLICT OF INTERESTS

The Authors declare that there is no conflict of interest.

## FUNDING RESOURCE
This research received no grant from funding agencies in the public, commercial, or not-for-profit sectors.

## ETHICAL STANDARDS
This study was conducted under the Ethics Committee of Kerman University of Medical Sciences supervision. All information was maintained confidential and anonymous and investigated by two physicians that were responsible for data collection. Since some sections in the questionnaire were personal. At the beginning of the interview, the patients were ensured completely that the questionnaire would be anonymous and confidential to avoid the possibility of wrong answers or exclusion of patients.

**Table 1: Demographic and basic information of patients**

| Variables | | ACS* Group | Control Group | P-value |
|---|---|---|---|---|
| Age (Mean±SD) | | 53±10 | 51±4 | 0.39 |
| Gender n (%) | Male | 49 (60) | 46 (54) | 0.46 |
| | Female | 33 (40) | 39 (46) | |
| Marital Status n (%) | Married | 76 (93) | 76 (91) | 0.24 |
| | Widow, Divorced, single | 6 (7) | 7 (9) | |
| Education n (%) | Primary school | 38 (46) | 29 (34) | 0.07 |
| | Guidance school | 8 (10) | 10 (12) | |
| | High school | 21 (26) | 27 (32) | |
| | College or higher | 15 (18) | 19 (22) | |
| Job n (%) | Retired | 19 (23) | 16 (19) | 0.11 |
| | Housewife | 29 (35) | 35 (41) | |
| | Employee | 13 (16) | 10 (12) | |
| | Self-employment | 21 (26) | 24 (28) | |
| Background Disease n (%) | CAD | 82 (100) | 0 (0) | 0.00 |
| | Chronic disease except CAD | 45 (55) | 69 (81) | |
| | Depression | 7 (8) | 9 (11) | |
| | Anxiety | 2 (2) | 1 (1) | |
| | None | 0 (0) | 15 (18) | |

*Acute Coronary Syndrome

**Table 2: Personality disorders in ACS patients vs. control patients**

| Personality Disorder | ACS* Group n(%) | Control group n(%) | P-value |
|---|---|---|---|
| **Moderate Personality Disorder** | | | |
| Avoidant/Depressive | 34 (41) | 26 (31) | 0.19 |
| Obsessive-Compulsive | 25 (30) | 14 (16) | 0.04 |
| Histrionic | 23 (28) | 20 (23) | 0.59 |
| Schizoid | 6 (7) | 3 (4) | 0.30 |
| Narcissistic | 5 (6) | 2 (2) | 0.24 |
| Dependent | 2 (2) | 3 (3) | 0.65 |
| Antisocial/Aggressive | 2 (2) | 7 (8) | 0.08 |
| None | 16 (19) | 29 (34) | 0.02 |
| **Severe Personality Pathology** | | | |
| Schizotypal | 1 (1) | 0 (0) | 1.00 |
| Borderline | 0 (0) | 2 (2) | 1.00 |
| Paranoid | 1 (1) | 1 (1) | 1.00 |

*Acute Coronary Syndrome

## REFERENCES

1. Khoosfi H, Monirpoor N, Birashk B, Peighambari M. A comparative study of personality factors, stress - full life events, and social support in Coronary Heart patients and non–patient. Contemporary Psychology 2007; 3: 41-8. (Persian)
2. Saeed T, NiaziG, Almas, S. Type–D personality: a predictor of quality of life and Coronary Heart Disease. Estern Mediteraniean Health J 2011; 17:46-50.
3. Paikkonen K. Psychological aspects of cardiovascular disease. Int J Behav Med 2009; 16:195-
4. Akbari M, MahmoodAliloo M, Aslanabadi N. Effects of negative emotions, social inhibition and role of gender factor on development of Coronary Heart Disease. Psychological studies 2008; 4(1):71–86. (Persian)
5. Friedman M, Rosenman RH. Type A behavior and your Heart. New York: Knopf; 1975.
6. Denollet J, Rombouts H, Sys SU. Negative affectivity and social inhibition: pervasive influence on self–reported mood, health and Coronary–prone behavior. Psychosom Med 2001;53: 538–56.
7. Scheier MF, Bridges MW. Person variables and health: Personality predispositions and acute psychological states as shared determinants for disease. Psychosom Med 1995; 57(3): 255-268.
8. Bonaguidi F, Trivell MG, Carpeggiani C. The second order factor structure of cattell's 16 pf in patients with Heart disease. Psychol Rep 1994; 75(3PH):1271-1275.
9.Musavi SM, Namazi Sh, Lotfian AA. Personality characteristics and Coronary Artery Disease. Hormozgan medical journal 2005;9(2):109-112. [Persian]
10. Sedigheh Eshraghi, Ahmad Khamosan, Reza Dastjerdy, Seyyed Morteza Vejdan, Toba Kazemi. Personality traits of patients with myocardial infarction A case-control study. Journal of Birjand University of Medical Sciences (supplementary: cardiovascular). 2013; 19 (6): 42- 49. [persian]
11. Denollet J. Personality and Coronary Heart Disease: The Type-D scale 16 (DS16). Ann Behav Med. 1998 Summer;20(3):209-15.
12. Denollet J, Vaes J, Brutsaert DL. 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 2000;102(6):630-5.
13. Lee HB, Offidani E, Ziegelstein RC, Bienvenu OJ, Samuels J, Eaton WW et al. Five-factor model personality traits as predictors of incident Coronary Heart Disease in the community: a 10.5-year cohort study based on the Baltimore epidemiologic catchment area follow-up study. Psychosomatics. 2014 Jul-Aug;55(4):352-61.
14. Robert H. Pietrzak, Julie A. Wagner, and Nancy M. Petry. DSM-IV Personality Disorders and Coronary Heart Disease in Older Adults: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Journal of Gerontology: PSYCHOLOGICAL SCIENCES 2007;62(5):295–299.
15. Ali Akbar Sharifi , Hosein Moulavi, Korosh Namdari. The Validity of MCMI-III (Millon) Scales. Knowledge & Research in Applied Psychology 2008; 9(34):27-38.
16. Friedman HS, Booth-Kewley S. Personality, Type A behavior, and Coronary Heart Disease: The role of emotional expression. J Pers Soc Psychol 1987;53(4):783-92.
17. L. SHER. Type D personality: The Heart, stress, and cortisol. Q J Med 2005; 98:323–329.
18. Hanieh Shafiee, Hojatollah Javidi, and Soltanali Kazemi. Moghaiese vijegihaye shakhseiati ba salamat ravan zanan va mardan daraie bymari ghalbi va kolyavi [Comparison of personality traits and mental health in male and female patient with heart or kidney diseases]. Faslnameh elmi-pajuheshi jameeshenasi 2001;2(2):149-162. [Persian]